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Malignant Vaginal Polypus Secondary to an Adrenal Tumour of the Kidney.*

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INTRODUCTORY REMARKS.

PRIMARY sarcoma of the vagina in the adult is clinically and pathologically a disease of high interest, about which much has been written during the past twenty years by many British and foreign gynæcologists. In the course of that same period, general surgeons and pathologists have bestowed much attention on a far more frequent yet, until of late, hardly more recognized form of new growth "hypernephroma" or adrenal tumour of the kidney, so called because it originates in "rests" or tracts of tissue resembling that which makes up the normal zona fasciculata of the supra-renal capsule.

I will now relate a case where a malignant pedunculated tumour developed in the vagina of a woman, aged forty, some of its lobes coming away from time to time, whilst one amongst three sessile adjacent growths showed "pseudo-melanosis" (Horn, Morestin) of the superjacent vaginal mucosa. All these features have repeatedly been recorded in cases of what is specifically known as "primary sarcoma of the vagina in the adult." Nevertheless the tumour proved to be secondary to an adrenal adenoma of the kidney. Nephrectomy was performed, the patient surviving the operation for three months. After death, metastatic deposits were detected in the liver and lung as well as the vagina.

HISTORY OF THE CASE BEFORE OPERATION.

Mrs. E. H., aged 40, was admitted into my wards in the Samaritan Free Hospital on November 7th, 1906. She had been referred to me by Dr. W. T. Evans, of Gloucester Terrace, who had detected an

* Read before the Obstetrical Society of London, May 1st, 1907.

abdominal tumour and a polypoid growth in the vagina. The patient had been married nineteen years. Her sole pregnancy ended at term two years after her marriage. Dr. Evans could find no history of any serious illness since or before her confinement. Early in September, 1906, she complained of a "chill and tightness of the chest." She kept in bed for a few days, and felt extremely weak when she got up. Thenceforward she began to be troubled with profuse sweats which, as will be seen, continued after the operation. After August, 1906, the catamenia ceased abruptly. They had previously been regular with moderate hæmorrhage for about four days. On recovering from the "chill" the patient discovered that the abdomen was swelling, and it slowly increased in size.

The patient was rather thin and distinctly sallow. An oval, elastic tumour occupied the right iliac region. It was of about the size of a cricket-ball, and could be moved laterally to the extent of two or three inches, but could not be pushed far backwards or upwards. On percussion, there was resonance which varied from day to day. The kidney could not be defined in the loin, and there were no enlarged glands in the inguino-femoral region.

There was hardly any vaginal discharge. On the posterior commissure lay a flat nodule under an eighth of an inch in diameter, and its surface bore papillæ. A pedunculated morbid growth of somewhat unfamiliar type sprang from the mucous membrane of the vagina two inches above the vulval orifice anteriorly and a little to the right of the middle line. It was racemose rather than polypoid, consisting of several outgrowths varying in shape and size; some were like grapes, others cylindrical, elongated and irregularly bent. They were for the most part dark grey in colour. The entire growth was attached to the vaginal wall by a stout, fleshy pedicle about three-quarters of an inch in length; the secondary branches of the pedicle running to each outgrowth were, on the other hand, short, thin and friable. Two lobules came away after admission, before the operation. They were sent to the College of Surgeons. (Fig. I.) I detected, on further examination, three sessile growths in the mucous membrane of the posterior part of the vaginal wall. The largest was about half an inch in diameter, and there was a black patch on its surface. They were not adherent to the subjacent tissues, and the rectum was free from new growths.

The cervix appeared quite healthy and moved freely with the rest of the uterus. There was no deposit above the vaginal fornices, and the tumour in the right iliac fossa could not be pushed down below the pelvic brim.

The tongue was rather raw but not glossy, the appetite was bad, and the bowels were neither constipated nor relaxed.

The patient had observed that the urine had been very thick ever since the chill, but declared that it had never contained blood. It

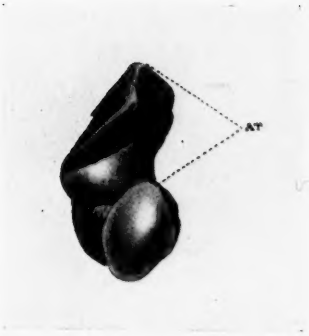

Fig. I.

Fig. II.

was loaded with bright pink urates, yet the specific gravity never exceeded 1022; about twenty fluid ounces were passed daily. No albumen could be detected.

The temperature fluctuated considerably during the seven days between admission and operation. The maximum was 102° (November 11th, evening), the minimum (November 13th, morning before operation) 98·6°.

The pulse was 108 on admission, and never fell any lower before the operation. It was fairly full and very soft. My clinical assistant, Major S. Colin Evans, I.M.S., to whom I am much indebted for help in preparing these notes, detected a faint organic systolic murmur at the heart's apex, but no abnormal pulmonary signs.

I diagnosed the vaginal growth as a pedunculated sarcoma, a type noted of recent years by many writers, some of whom have observed its tendency to undergo necrosis, so that its lobes come away one by one. About the tumour in the right iliac region I felt much less certain. I believed that it was either an enlarged kidney or an ovarian dermoid held back by adhesions and bearing adherent intestine on its anterior surface.

The Operation.

The operation was performed on November 13th, with the assistance of Major S. Colin Evans and Dr. W. T. Evans, Mr. W. S. Morley administering the anæsthetic. My intention was to excise the vaginal growths after removing the abdominal tumour.

When the peritoneal cavity was opened by a median incision about one pint of clear ascitic fluid escaped. A dull white tumour bearing small red wattle-like outgrowths on its surface lay behind the ascending meso-colon. The uterus and ovaries were normal, and in no way connected with the growth. The intestines showed no signs of disease, and there were no adhesions. I made a longitudinal incision through the layer of peritoneum which passed from the ascending colon on to the parietes in the flank, encapsuling the outer part of the tumour. I then enucleated that part, and set free the front of the tumour without damage to the colon. The ascending meso-colon, strongly adherent to the tumour, was torn but without injury to the vessels, which were much dilated. I passed my hand under the lowest and innermost part of the tumour, which proved to be the greater part of the right kidney, almost unchanged and rotated downwards and inwards so as to lie over the lumbar spine. A great deal of fat was now detached from above and behind the tumour and much oozing ensued. The renal vessels lay in a thin, tense band, which ran upwards from the hilum and looked like an old adhesion; the band was divided and the kidney itself set free. This stage of the operation proved easy; the ureter was very thin. On the other hand, I had great difficulty in securing vessels in the oozing surface above. I was obliged to push up the liver, which

was pale and thin and apparently free from new growths. The gall-bladder was slightly distended. I detached some firm nodules, apparently glands, from the oozing tissues close to the vena cava.

The patient's condition being very unfavourable, I did not proceed to remove the vaginal growths, as I had originally intended. I flushed the peritoneal cavity with saline fluid, applied deep interrupted sutures to the abdominal wound, poured more saline fluid into the peritoneal cavity, and, lastly, closed the abdominal incision.

I must admit that, at the conclusion of the operation, I felt anxious about immediate results. I could not feel certain that the tumour was not situated in the supra-renal body itself, and when separating it from its upper connections, I thought of a specimen, presented by Dr. Lediard to the Museum of the Royal College of Surgeons (Pathol. Series No. 3514), removed from a subject after death from Addison's disease. It reads: "A supra-renal capsule with the adjacent vena cava. . . . . It is abnormally close to the vena cava, and compresses its own vein." These words were my own, written after examination of the specimen many years ago. But I have never forgotten them, and in consequence do not feel comfortable when operating on anything which may be the supra-renal capsule, as anatomical relations are not always easy to define in the course of an operation, and I know that even during the removal of a purely renal tumour the vena cava may be wounded.

The Renal Tumour.

The parts removed at the operation consisted of the right kidney surmounted by a tuberous mass, which was separated from the kidney in front by a distinct groove (Fig. II.), whilst posteriorly it blended with the adjacent pole of the kidney without any visible sign of demarcation.

The vertical measurement from the uppermost part of the tumour to the opposite pole of the kidney was $5\frac{1}{2}$ inches. The tumour alone measured $4\frac{1}{2}$ inches horizontally, $2\frac{1}{4}$ inches vertically, and $2\frac{1}{2}$ inches antero-posteriorly. Its surface was somewhat tuberous, and bore masses of fat. The kidney was of about the normal size, and its capsule was not adherent.

On *section* the new growth was seen to invade the substance of the kidney to a considerable extent at its apparent upper pole. (Fig. III.) A piece was cut off the border of the kidney posteriorly, where the fusion was as above stated, most marked, so as to include a portion of the tumour. This piece was preserved for microscopical examination. On the kidney, at the point where the piece had been cut, an isolated tract of new growth, with a well-defined almost circular border was exposed; it lay in the cortex of the kidney about half an inch away from the lower limits of the tumour.

Fig. III.

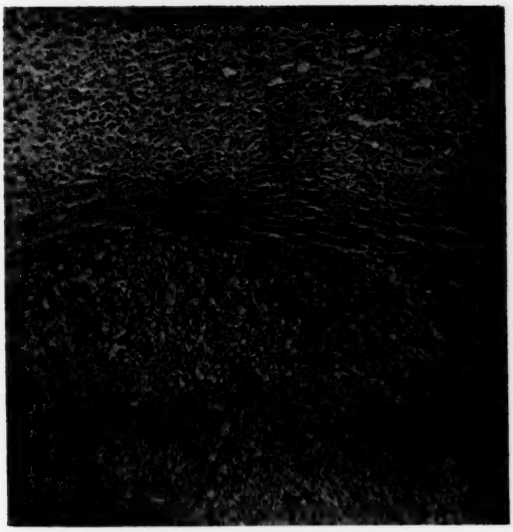

Fig. IV.

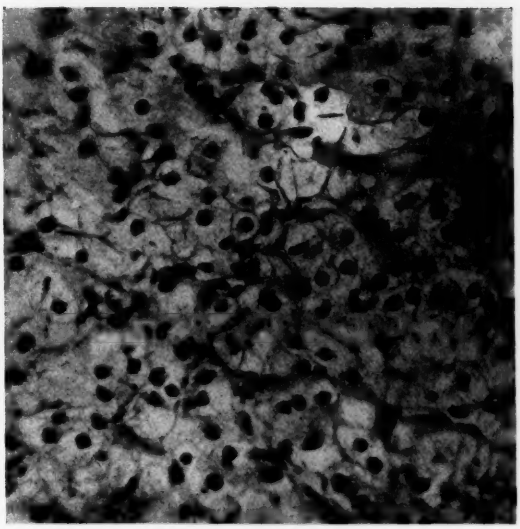

Fig. V.

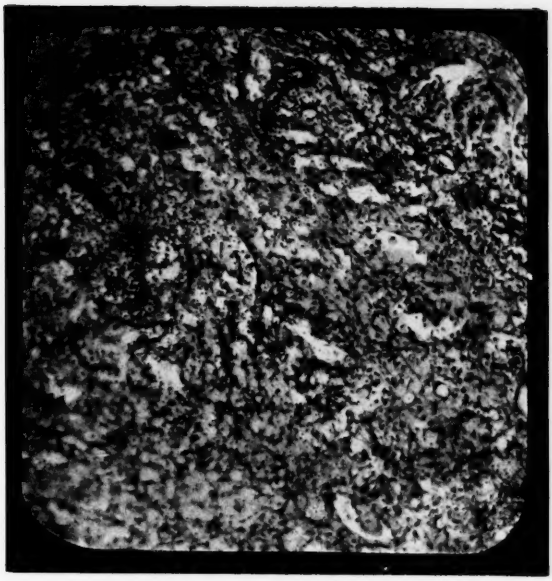

Fig. VI.

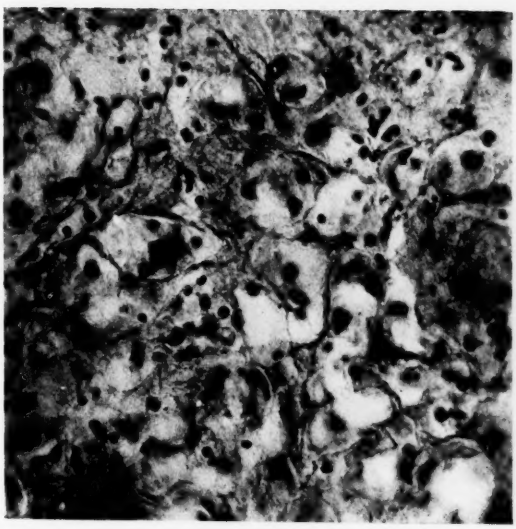

Fig. VII.

The bisected tumour and kidney have been preserved, the anterior half in the Museum of the Royal College of Surgeons, the posterior in Dr. Cuthbert Lockyer's private collection. The cut surface shows the yellow tissue, with spaces filled with blood, characteristic of adrenal growths.

Microscopical Appearances of the Renal Tumour. I examined with Mr. Shattock, some sections of the tumour at its point of junction with the kidney. (Figs. IV. and V.).

On the renal side of the section true cortical tissue was seen, free from new growth. The tubuli uriniferi were well-formed, bearing normal epithelium, but a certain amount of fibrosis was present.

The kidney substance was separated from the new growth by a narrow but very distinct tract of fibrous tissue.

The tumour was made up of large cells with big and well-formed nuclei. These cells were arranged in somewhat irregular columns strongly simulating, in Mr. Shattock's opinion, the arrangement of the cells of the zona fasciculata of the cortex in the supra-renal body. The new growth was very vascular, especially at certain points where groups of blood-vessels were seen, some empty and others full of blood. There was very little stroma, so that the cells seemed to rest on the capillaries.

Mr. Shattock, after carefully dissecting the preparation, has pointed out to me that the ureter lay in the hilum *anterior* to the artery. I have no doubt as to the position of the tumour when I operated, the kidney was displaced downwards and inwards so that it lay very conspicuously across the lower lumbar vertebræ with its outer or convex border downwards. Hence the position of the ureter would imply that the tumour had really developed in the *lower* pole of the kidney (probably movable before it became diseased) and that the organ with the new growth had undergone rotation, bringing the tumour and the lower pole uppermost. This fact in no way modifies the pathological aspect of the case in respect to the nature of the vaginal and visceral growths.

The Vaginal New Growth.

The lobules which, as I will relate, came away after the operation were in a markedly necrotic condition, unfavourable for a study of the histology of the tumour. The two which broke off from the pedicle before the kidney was removed were in a much less altered state, although not absolutely free from necrotic changes. From one lobe, oval and half an inch in its long diameter, some successful sections were made at the Royal College of Surgeons. (Figs. VI. and VII.).

Microscopical Appearances. The tumour was made up of large cells with big nuclei, and, as in the renal tumour, the cells showed in many parts of the section a tendency to a columnar arrangement.

The groups of cells were separated by connective-tissue, forming very fine lines excepting at certain points where the tissue was much thickened by free fibrinous exudation.

Mr. Shattock considers that these appearances indicated that the vaginal tumour was secondary to the adrenal growth connected with the kidney. It had none of the microscopical characters of a pedunculated primary sarcoma of the vagina, which it so closely resembled to the naked eye.

I must add that near the periphery of the section, corresponding to the surface of the tumour, was a necrosed area separated from the unchanged tumour tissue by a well-marked layer of fibrin. In this area there was much fibrinous exudation, the tumour cells had almost disappeared, and there was distinct small-celled infiltration towards the free surface of the tumour.

History after Operation.

The patient recovered from shock sooner than I had expected. She passed urine naturally within four hours after the operation, and never required the catheter. There was very little vomiting, no distension and no difficulty in the passage of flatus, which passed freely within twelve hours. For a week the temperature seldom rose above 99·2°, and the maximum was 100·2°, and the pulse became rather stronger and slower than before the operation. In the course of the third week cystitis set in, probably from discharge from the stump of the right ureter and from irritation due to the urine which was as full of pink urates as before the operation, and could not be kept clear without large doses of citrate of potash, etc.

On November 24th, the sweats, which had never entirely ceased, became profuse. The thorax was examined, and dulness on percussion was detected in the right side up to the third rib. There was increased roughness of breathing-sounds over both lungs and crepitation at the left apex. These symptoms disappeared within a fortnight, but the dulness never cleared up. On December 2nd a mass of necrosed new growth protruded from the vagina, and was easily broken off from the pedicle without much subsequent hæmorrhage. At that date there had already been a rise of temperature for a few days, once reaching 102° in the evening. This rise was, apparently, accounted for by the development of a tender body above the right iliac fossa, representing inflammatory exudation around the ligatured tissues, but, as I will endeavour to explain, it was more likely due to another cause.

The patient, contrary to my advice, desired to go home; I had hoped to improve her condition so that she might be able to bear the removal of the vaginal growths. She was discharged on December 12th, a month after the operation. The swelling about the right iliac fossa had grown larger, but was distinctly less tender. As on

November 24th, there was dulness in the right mammary line up to the third rib without cough, hæmoptysis or dyspnœa. The edge of the liver could be defined three inches below the ribs in the mammary line; it was thin, firm, smooth and not tender. The abdomen itself was not distended, or tender on palpation. The three growths on the posterior wall of the vagina had not increased, in fact they were necrosing; the pedunculated growth on the anterior wall still bore several lobes. Just as when the patient was admitted, the upper part of the vagina was free from growths, and there was hardly any vaginal discharge. The urine was still charged with bright pink urates; the ropy mucus had disappeared after free washing out of the bladder.

The patient was clearly in very weak health. I referred her again to Dr. W. T. Evans. We both feared that she would never be in a condition which would allow of an operation to remove the vaginal growths.

On January 2nd, 1907, Dr. Evans informed me that the patient was losing ground, and that at times she was troubled with cough. "To-day the monthly period began; it is rather profuse." Considering how weak the patient had become, this return of the catamenia, after suppression for five months, was remarkable. The patient, notwithstanding her extreme weakness, lived until February 8th, dying twelve weeks and three days after the operation.

Dr. W. T. Evans was permitted to make a post mortem examination, and to him I am indebted for the following report:—

The body was greatly emaciated, and the skin uniformly sallow. The *abdominal wound* had healed perfectly.

There was no free fluid in the *peritoneal cavity*, or any secondary deposits on the parietal peritoneum. The *stomach* was extremely dilated, its greater curvature almost touching the pubes. The *small* and *large intestines* were almost empty; the rectum contained some soft fæces. There was no sign of obstruction, or any trace of secondary deposits. The rent in the ascending meso-colon had closed. The structures forming and surrounding the *pedicle of the right kidney* were removed for examination, as well as an oval body, apparently an enlarged lumbar gland, above them; the right supra-renal body could not be distinguished. When examined, no collection of pus could be discovered in or around the pedicle, and there was but little inflammatory effusion into its tissues, though adhesions were very dense. (The lump in the right side had not increased since the patient left the hospital.)

The *left kidney* and *supra-renal body* showed no outward sign of disease, and were put aside with the *spleen*, which was small and firm. The *liver* was large, almost of the normal colour, but slightly mottled at certain points. There were no inflammatory adhesions between it and the diaphragm and viscera. Several secondary

deposits were found in its substance, pale yellow and firmer than the hepatic tissue. One lay superficially in the anterior part of the right lobe, and was as big as a filbert; another of about the same size in the left lobe, but it was ill-defined. Two others, well defined, lay in the substance of the right lobe. The anterior edge of the liver and its under surface showed no signs of secondary deposit. The *gall-bladder* was somewhat distended with dark bile; there were no calculi in its cavity, or in the ducts.

An incision was made in the diaphragm; the right *pleura* was found to be free from adhesions and effusion; the right *lung* appeared normal in consistence, but several secondary growths, similar to those in the liver, were found in the lower part of the inferior lobe, which, together with the liver, was preserved for further examination.*

The *uterus, ovaries* and *vagina* were removed and preserved. Douglas's pouch and the parts around it showed no signs of any secondary growth; but soft adhesions (not existent at the date of the operation) had formed between several coils of small intestine and the posterior surface of the uterus.

The preserved parts were transferred to my care, and I submitted them to Dr. Lockyer and Mr. Shattock for microscopical examination.

The left kidney and supra-renal capsule proved to be free from new growths or any other visible morbid condition. The same was the case with the spleen, which, considering the long-standing high temperature, was unusually small and firm. The uterus and ovaries bore no secondary growths.

The pedunculated tumour in the vagina had almost entirely broken down. The three sessile growths in the posterior wall had become necrotic.

The Secondary Growths. There was some difficulty in preparing satisfactory sections of the secondary growths in the right lung and the liver, as they were very soft. At length some sections were successfully cut and stained; under the microscope they showed all the appearances characteristic of adrenal tissue.

Having related my case, I will now review what has been written about connective-tissue tumours of the vagina and adrenal growths of the kidney.

Vaginal Fibroma and Sarcoma.

Solid tumours of the vagina are not common. Richard R. Smith published, five years ago, a good monograph on *fibro-myomatous tumours* of the vagina. He collected 101 cases. They are nearly always single, Strassmann and Olenin have reported the only two

* The remaining thoracic viscera and the cranial cavity were not examined; the necropsy was made in the house where the patient died.

authentic exceptions. The nature of the attachment of the growth to the surrounding parts is noted in 66 cases; in no fewer than 39 the tumour was said to be polypous or pedunculated, whilst the remaining 27 were sessile. Observers, however, differ about what the word "pedunculated" may signify. The most important clinical fact made clear by R. R. Smith is the marked tendency of these innocent fibromas and fibromyomas to become necrotic, especially when they grow large. The same change has long been known as frequent amongst malignant tumours of the vagina; but Smith's evidence shows that it is no essential proof of malignancy.

Only twelve days before I removed the kidney above described, I operated on a fibroma of the vagina. The patient was a married woman, aged 55, who had only once been pregnant; her child was 14 years of age. She consulted me on account of a large ovarian cyst. There was a history of suppurating femoral glands when she was 22 years old. On November 1st, 1906, I removed both ovaries for cystic tumour free from any evidence of malignancy. The vaginal tumour, which I had discovered when examining the patient, lay about two inches above the posterior commissure. It was perfectly sessile and of the shape and size of a broad bean. The vaginal mucous membrane over it and around it was quite healthy, but I excised the mucosa very freely; much bleeding ensued, easily stopped when the sutures passed under the wound were tied. Dr. Cuthbert Lockyer examined the growth, and found that it was made up of pure fibrous tissue. He suspected that it might be keloid in type, an interesting point in relation to the genesis of vaginal fibroids.

We are much more concerned at present, however, with the only other form of vaginal growth which we need discuss, namely, *primary sarcoma of the vagina in the adult.* The last three words are always added in systematic works in order to distinguish this new growth from another and a different type which developes *in the infant.* "Primary sarcoma" will be sufficient here to express solely the type observed in the adult.

A great deal has been written about this primary sarcoma, yet the disease is rare, although Meadows turned attention to it nearly forty years ago, and since then Gow, Veit, Roger Williams, Jellett and Earl, and others have published careful analyses of collected cases inclusive of those under their own observation. Yet Jellett and Earl, the latest writers, could only find 39 authentic reports, less than half the total of genuine instances of primary cancer of the Fallopian tube collected by Orthmann and published in 1906. Nevertheless I believe that most gynæcologists appear to be under the impression that vaginal sarcoma must be much less rare. The labours of R. R. Smith, to which I have already referred, bring up the recorded examples of fibroma and fibromyoma to 101, and it is highly probable that many other cases remain unreported. For

innocent tumours are held by many operators as trifles not worth writing about, and, on the other hand, fibroma of the vagina often grows slowly, and gives no trouble, so that it is liable to be overlooked by the patient, as in my own case, where, as I have explained, I discovered the vaginal tumour accidentally when examining a woman subject to ovarian cyst. For the above reasons we may feel sure that, in the vagina, fibroma is commoner than sarcoma.

Veit concludes his remarks on *das Sarcom der Scheide bei Erwachsenen* by solemnly warning all future observers who may come across sarcomatous growths in the vagina not to be satisfied with a cursory examination of a case hurriedly embodied in a brief clinical report, but to make sure of the precise significance of any histological element that they may detect, striated muscular fibre, for instance, and, above all, to satisfy themselves and others as to whether the new growth be primary or secondary. To this view of the question we must all cordially assent, for the collected records of primary sarcoma up to the present date cannot as yet satisfy the pathologist, guide the practitioner or aid the operator.

Veit, I have observed, mentions striped muscle as an element which arrests our attention. My experience shows that it may be arrested by another highly interesting tissue, the discovery leading to the important conclusion that the vaginal tumour is not primary. Since very little was known about these adrenal "rests" until a few years ago, I suspect that even on more than one occasion a secondary tumour of the vagina similar to my own may have been misinterpreted and ranked as a primary sarcoma.

Thus Klien published, as long ago as 1894, a report of a vaginal tumour which he classified as a lymphangio-endothelioma cavernosum hæmorrhagicum. The patient was a multipara, aged 56; two pedunculated, tuberous elastic tumours sprang from the vaginal mucous membrane; they were very friable. Both were amputated, and the patient was discharged on the seventh day; the after-history was incomplete.* The new growth was reticular in structure with the meshes filled with blood. But Neusser, amongst others, reminds us that tumours arising in adherent "rests" are apt to become "almost telangiectatic." I cannot help thinking that Klien's tumour might have been of that type.

I will now dwell for a while on two clinical features common to my case, and to many examples of alleged primary sarcoma of the vagina in the adult, namely, *pedunculation* and *pigmentation*.

Pedunculation. According to published reports, a large propor-

* Klien (*loc. cit.*, p. 301) states that recurrence took place, but at the date on which his report was published the patient could not be persuaded to return to hospital. The case, he said, was being closely watched. I cannot find any further note of it by Klien himself. Veit (*Handbuch der Gynäkologie*, vol. i., p. 362) suspects that Klien's tumour was a carcinoma. Klien makes no mention of any examination of the abdomen before the removal of the tumour.

tion of all types of primary connective-tissue tumours of the vagina are pedunculated. Such is the case, we have seen, in respect to innocent tumours. The reports of pedunculated and sessile primary sarcoma are, I find, not highly reliable. In the first case, errors have crept into tables and statistics. Thus Gow writes, in describing his original case: "On the lower part of the posterior wall is situated a small, round, *sessile* tumour," and in that writer's tables the same case is entered, under the heading "Clinical Form of Growth" as a "sessile lump." Yet in Veit's tables, widely quoted, Gow's case (No. 14) is entered as *gestielt*. In the second place, as I have already had occasion to remark, authors differ as to what the words 'pedunculated,' 'pediculated,' 'polypous' and 'sessile' precisely signify. We know that they do so when describing subserous fibroids of the uterus. A tumour with a sharp edge overhanging a relatively narrow attachment seems to be considered by some as pedunculated and by others as sessile, the latter description being the more correct. These doubtful cases represent an intermediate stage between the absolutely sessile growth merely projecting from the surface of the mucosa, and the tumour with a distinct stalk, a true pedicle in fact, undoubtedly the later stage of the former type. This fact was demonstrated in my case where the larger, older and sloughing tumour had a very distinct pedicle, whilst the smaller growths were, when I examined them, absolutely sessile. The large tumour was racemose rather than what is understood by polypoid. Ziegler in his *Pathologie* states that vaginal fibromas, myxomas and sarcomas may be racemose as well as polypoid. The primary sarcoma of the infant's vagina is well known to be racemose.

The fact that this pedunculated tumour of the vagina was secondary to an adrenal growth in the kidney shows how careful we ought to be about exploring the patient's abdomen and thorax and also about choosing a really competent pathologist to examine the original growth under the microscope. I was under the impression, until I received Dr. Lockyer's and Mr. Shattock's reports, that there might be coincident vaginal sarcoma and renal hypernephroma, the more so as when I detected evidence of new growth in the base of the right lung, I remembered that such a complication had already been observed in primary sarcoma of the vagina.* The microscope, however, showed that both the vaginal tumour and the new growths in the lung were secondary to the renal growth.

Pigmentation. In this case, as I have already observed in the clinical report, the largest of the three sessile growths in the mucous membrane of the vagina posteriorly bore a black patch on its surface.

* Herzfeld, case where nodules of the new growth were detected in the lungs and pleura at the necropsy; also Bajardi, case where the clinical evidence was strong though no post mortem was permitted. Gow (*loc. cit.*) gives good abstract reports of the two cases.

Unfortunately this appearance was lost because the growth became sloughy before the patient's decease. The pigmentation was very possibly confined to the vaginal mucous membrane investing the growths. In Horn's case of primary sarcoma the mucosa was pigmented, though the tumour itself was free from pigment; yet some secondary growths in the inguinal glands were much pigmented. Later on, pigmentary growths developed on the vulva, whilst a big irremovable encephaloid abdomino-pelvic mass was found to be free from pigment. Horn ascribed the pigmentation, which was so remarkably irregular in his case, purely to hæmorrhages, and gave good reasons for his opinion. Morestin, in examining a pedunculated round-celled sarcoma from an elderly virgin, found that some of the cells were charged with pigment, which, like Horn, he ascribed to blood.* My own experience shows that a secondary adrenal tumour of the vagina may be pigmented, and in all probability from the same cause. Pigmentation seems to be a fascinating subject to many writers; as for true melanosis, I may refer the reader to my friend Professor W. Sampson Handley's Hunterian Lectures on "The Pathology of Melanotic Growths in Relation to their Surgical Treatment" (*Lancet*, April 6th, 1907), delivered last February at the Royal College of Surgeons.

Since the above observations were written, I have come across a third case, recorded by Dr. Boldt ("Primary Melanotic Sarcoma of Posterior Vaginal Wall," with a photogravure. Report of a meeting of the New York Obstetrical Society, *Amer, Journ. Obstet.*, October, 1906, p. 550). The patient was a nullipara, aged 37, the tumour was sessile and made up of "small round cells," the deeper were "laden with dark pigment." Rapid recurrence followed removal.

This case would hardly induce Horn and Morestin to alter their views as to the origin of the pigment.

There remains one more feature in my case interesting in respect to the vaginal tumour.

The Sweats. I have noted that the patient was troubled with free sweats at the beginning of her illness. They never ceased entirely, and became profuse again in the second week after the operation. At the time, I attributed the marked aggravation of the symptom to exudation in the stump of the pedicle, possibly to suppuration. At the necropsy, however, but little evidence was found of inflammation, and there was no trace of pus in the stump or round about it. On the other hand, there were no inflammatory changes in the kidney which I removed, nor, as far as I am aware, does the development of abnormal adrenal tissue cause perspirations.

* Veit includes in his tables Parona's "Melanotic Spindle-celled Sarcoma" with reference "Annal. Univ. Med-Chir. Milano, 1887," but, like myself, was unable to obtain a copy of the original report. Most probably Parona's case resembled those described by Horn and Morestin.

The true cause of this symptom was in all probability septic infection from the sloughing vaginal growths, a complication noted by Howard Kelly in his *Operative Gynæcology* (Vol. i., 2nd ed., p. 332): "There is a great tendency in all of these tumours to undergo necrosis, and this, together with the foul discharges, opens up an avenue for the entrance of an infection, which in the end often causes death." The vagina was kept as clean as possible after the operation, but a considerable amount of absorption was inevitable. The speedy removal of the growths shortly after the nephrectomy might have given temporary relief, but the patient would not consent to any further operation. When I removed the kidney the patient was in a state of collapse after I had secured the numerous vessels divided when the upper part of the tumour was set free. Removal of the vaginal growths, which would have required free dissection of mucous membrane around all of them, was therefore unadvisable.

Cancer of the Vagina. A cancerous vaginal growth does not tend to assume a polypoid form, so that I need not dwell on that type of tumour. I find, however, that Dr. H. Macnaughton Jones has recently described a primary carcinoma of the vagina. He says: "It was botryoidal in character, and the deeper part was pedunculated."

Adrenal Sarcoma or Hypernephroma of the Kidney.

In the present case the primary seat of the new growth was the kidney, and the structure of the new growth resembled that of the supra-renal capsule. There were secondary adrenal tumours in the vagina, one of which was clinically conspicuous; these new growths may put us in mind of Eastwood's case of adrenal tumour of the uterus, but in that instance the tumour was primary.

The above facts compel us to dwell for a while on a very intricate subject. Numerous monographs and essays on adrenal tumours have been made public since that not very remote period the dawn of the twentieth century.

We are not concerned with certain tumours of the supra-renal capsule itself, new growths observed in children and associated with abnormal growth of hair and other marked anomalies. Bulloch and Sequeira have written much about these new growths arising in the supra-renal capsule; we must, at the same time, remember Knowsley Thornton's case, where the patient was an adult, a lunatic aged 32. The face and extremities were extremely hairy. The preparation is now in the Museum of the Royal College of Surgeons (Pathol. Series, 3518 E.).

In the present instance the primary growth lay not in the supra-renal capsule, but in the kidney, so that we must consider adrenal tumour or hypernephroma of that organ. The best summary by a special authority has been drawn up by Neusser. That writer speaks of excessive proliferation of circumscribed portions of the supra-renal

substance giving rise, in the first instance, to small tumours resembling lipomata which have been termed supra-renal strumas or adenomata. "These are situated in the cortex of the supra-renal capsule or, more frequently, in accessory glands occurring in the kidney. In the latter situation the term renal adenoma or 'heterologous renal struma' has been applied. They are small masses varying in size from a pin's head to a pea, yellowish white in colour, sharply defined and surrounded by a connective-tissue capsule. They are histologically identical with the supra-renal cortex, even the typical fatty infiltration of the parenchyma being present." In addition to this formation of metastases, in itself a manifestation of malignancy, supra-renal strumas, after existing for a long period of time, tend to assume malignant characters. These malignant growths become vascular, almost telangiectatic. They are subject to degenerative changes all but exclusively fatty. Hæmorrhagic cysts thus develop.

I have already referred to these changes observed in supra-renal "rests," when commenting on Klien's case of vaginal tumour.

A clear general summary of the characters of accessory adrenal tissue in the kidney will be found in the sixth edition of Mr. Bland-Sutton's "Tumours Innocent and Malignant," page 111; great attention should be paid to the author's observations at p. 116 warning us against confusing primary tumour of the supra-renal capsule with primary tumour of adrenal "rests" developing in the kidney. The fallacy is due to a very natural notion "that some of these tumours arise in the adrenal and gradually become incorporated with the adjacent parts of the kidney."

Such an error might readily arise from a hasty inspection of the kidney which I removed in the case under consideration. Anteriorly the new growth appears to be separated from the upper pole of the kidney by a distinct groove, so that it looks like a supra-renal capsule considerably enlarged. (Fig. II.) But posteriorly there is no such groove, and when the cut surface of the kidney is inspected, it becomes evident that the tumour lies inside the renal capsule and has nothing to do with the anatomical supra-renal capsule. (Fig. III.) I may call attention to Mr. Waring's very similar specimen in the Museum of St. Bartholomew's Hospital (No. 2390 G. 2), where externally the tumour seems at first sight to lie in the supra-renal capsule, on the top of the kidney, though it really lies in the kidney itself.*

When, however, we turn to another specimen in the same Museum (No. 2390 G.) we find a tumour of the same type, but it

* These remarks require modification as far as my specimen is concerned, since the position of the ureter was accurately defined (see above). There can be no doubt, however, that in Mr. Waring's specimen the tumour lay in the upper pole of the kidney.

lies on the *lower* pole* of the affected kidney. I inverted the bottle containing this specimen, when I examined it, and then it struck me how very much the tumour resembled a diseased supra-renal capsule on the top of the kidney. Several other instances of adrenal tumours in the lower pole of the kidney have been recorded (Eastwood, etc.).† They are good object lessons settling the once disputed question on naked-eye evidence. For the supra-renal capsule is not in the habit of growing on the lower pole of the kidney, and in No. 2390 G. "both supra-renal bodies were present in their normal positions." On the other hand, in cases of tumour of the supra-renal capsule itself, the kidney is as a rule quite intact. (Bulloch and Sequeira, Adams; see also Knowsley Thornton's specimen, Museum of the Royal College of Surgeons, Path. Series 3597 B.).

The invasion of the lung in my case is a complication already noted in association with "Hypernephroma" of the kidney, indeed it is frequent because, as Bland-Sutton observes, the tumour is apt to invade the renal vein or its branches. This question of the advance of the tumour reminds us of another subject of clinical interest. The new growth, it has been asserted, does not tend to invade the renal pelvis. Hence hæmaturia is said to be exceptional.‡ In one case (Mr. Waring's, which I have already noticed) the patient, a man, aged 47, suffered from "painless hæmaturia on several occasions." On inspecting the kidney in the Museum of St. Bartholomew's Hospital (2930 G. 2) I found that the growth had replaced not only the cortex, but also the upper pyramids, and has reached the renal pelvis.

However, it is hardly necessary for me to dwell any longer on adrenal tumours of the kidney, for there can be no doubt that such was the character of the renal tumour in my case, and that the vaginal growths were secondary, like the deposits in the liver and lung.

Fig. 1. The vaginal polypus. Lateral view of the largest detached portion, natural size. *A.T.* Line of attachment to pedicle.

Fig. 2. The right kidney and tumour seen from without (anterior surface). The tumour seems to lie on the upper pole of the kidney as though it had developed in the suprarenal capsule. In reality it lies within the lower pole which, owing to rotation of the kidney, lay uppermost.

Fig. 3. The right kidney and tumour showing their cut surface.

* See also Fig. 6 in Owen Richards' "Growths of the Kidney and Adrenals" (Guy's Hosp. Rep., vol. 59) where the tumour occupies the lower pole (Golding Bird's case), Richards, however, is not absolutely certain of the nature of the tumour.

†An adrenal tumour may stretch the kidney over its outer surface (Fairbairn), but in that case the observer could hardly be deceived as to the organ in which the new growth had originated.

‡ I find that, according to Owen Richards, it is not so rare as other writers lead us to believe (26 out of 41 cases, *loc. cit.*, p. 245).

The tumour is seen to lie within the capsule of the kidney invading the lower portion of that organ (see Fig. 2). It bears the naked-eye characters of an adrenal growth.

Fig. 4. Microscopical section of the renal tumour separated from the adjacent portion of the kidney (above) by an area of fibrous tissue. The tissue of the tumour (below) resembles that of the zona fasciculata of the suprarenal capsule. Low power.

Fig. 5. The same (lower portion) under a high power. The tumour is chiefly made up of large cells with big and well-formed nuclei.

Fig. 6. Microscopical section of a lobule from the vaginal tumour. Its tissue resembles that of the renal tumour (Fig. 4, lower portion), but it is wider meshed and less distinct. Low power.

Fig. 7. The same, under a high power. Its resemblance to the renal tumour (Fig. 5) is evident, although its tissues are affected by necrotic changes in its neighbourhood.

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A Short Note on the Duration of Pregnancy and the Relation between the Weight of the Child and the Length of Gestation in Europeans (in India), East Indians, and Natives.

By J. C. Holdich Leicester, M.D., B.S., B.Sc., M.R.C.P. (Lond.), F.R.C.S. (Eng.), *Captain, I.M.S.; First Surgeon, Presidency General Hospital, Calcutta.*

As far as I am aware the question of the duration of pregnancy in Europeans in the Tropics, in East Indians and in natives of India has never hitherto been investigated, and I think it may be worth while to give the results obtained from the records of about 400 cases, 264 of which I collected during the time I was Resident Surgeon at the Eden Hospital for Women, Calcutta, and the remainder of which I obtained from the records of the Hospital between the time I relinquished my appointment there and the end of last year. The former are hereafter alluded to as the first series, the latter as the second. For the latter I am indebted to the kindness of Lieutenant-Colonel F. S. Peck, I.M.S., and to the present Resident Surgeon, Captain B. Foster, I.M.S.

I should perhaps explain that by the term European is meant a person of unmixed European blood; East Indian includes all degrees of admixture between Europeans and natives of India; and by natives are meant those of pure native descent.

In all cases the duration has been reckoned from the last day of the last menstrual period. Every care was taken to exclude all those cases in which the child appeared to be premature, or in which there was any doubt as to the date of the last menstrual period. Great difficulty was experienced in getting correct particulars from natives, and it was found that in only a very small proportion of maternity cases in this class could trustworthy data be obtained. To a less extent this also applies to the East Indians, who, being a somewhat unobservant race, were also very often unable to give any accurate information on the subject. When it is stated that during the periods in question 2,000 cases, roughly speaking, were delivered in the Hospital, it will be seen in how comparatively few instances could accurate data be obtained.

Turning now to the results that I obtained: in Europeans the average duration of pregnancy, as based on 87 cases, was 279·977 days. Of these 45 occurred in the first series, with an average duration of 279·266 days, and 42 cases in the second series, with an average of 280·74

days; the difference between the two series being 1·474 days. The maximum duration in the whole two series was 299 days, and the minimum 261 days. In East Indians the average duration in 169 cases was found to be 276·744 days; in the first series of 97 cases, the average was 276·752 days, and in the second series of 67 cases, the average was 276·73 days; *i.e.*, a difference of only 0·022 days. The maximum duration of the whole two series being 299 days, and the minimum 255 days. In natives the average duration was found to be 279·972 days in the 143 cases, of which 114 cases in the first series gave an average of 279·912 days, and 29 in the second series an average of 279·93 days, a difference of only 0·018 days. The maximum duration in the whole two series being 301 days, and the minimum 258 days. In each case the close correspondence between the averages obtained in the two series would seem to indicate that though the number of cases collected is small, yet the average results obtained are probably fairly correct. Comparing these results with one another, it will be seen that the difference in the duration of pregnancy in the European and native of India is only 0·005 days. but that there is a difference of 3·233 days between the East Indian and the European. This result is very interesting, and is difficult to explain; whether it is merely because of the comparatively small number of cases collected or not, may perhaps be apparent when, at some future time, more extended observations are made.

With regard to the differences between the maximum and minimum duration of pregnancy, the greatest difference is 44 days, in the case of the East Indian; and the least 38 days, in the case of the European; whilst the native occupies a mid-position, with 43 days.

With regard to the length of gestation considered with reference to the sex of the offspring, in the case of Europeans and natives the periods are slightly longer when the child is of the male sex than when it is a female; the actual figures being:—In Europeans: Males (51 cases), 280·509 days; females (36 cases), 279·222 days. In natives: Males (82 cases), 280·707; females (61 cases), 278·984 days. In the East Indians, however, the period of gestation is slightly longer in the case of female children, the figures being: males (78 cases), 276·026 days; females (86 cases), 277·395 days.

As to the variation in the weights of the children, as affected by the duration of pregnancy, these are shown in the appended table, from which it will be seen that in the case of Europeans and Eurasians, as would be expected, there is a gradual increase in the weight of the child as the period of gestation lengthens. In the case of natives, however, this is not so, but the differences in weight are here so slight as to be practically negligible.

A further point of interest is the very wide range of difference in each series between the maximum and minimum weights of the children born after the same length of gestation, so that it does not

seem possible to lay any stress on the relation of the weight of the child to the period of gestation in any given individual case.

In conclusion, although the numbers are too small to enable any definite deductions to be made, the results appear on the whole to confirm those of other investigators, and to show that in respect of the length of gestation at least, a tropical climate exerts practically no influence.

TABLE SHOWING THE AVERAGE, MAXIMUM, AND MINIMUM WEIGHT IN POUNDS OF THE CHILDREN BORN AFTER VARIOUS PERIODS OF GESTATION IN EUROPEANS, EAST INDIANS, AND NATIVES.

	Period of Gestation in Days.			
	269 & less.	270—279.	280—289.	290 & over.
EUROPEANS:				
Average weight	6·98	7·1	7·699	8·36
Maximum weight ...	9·03	9	9·875	10·56
Minimum weight ...	5·75	5·56	5·7	6·25
No. of Cases	14	24	37	12
EAST INDIANS:				
Average weight	6·6	6·92	7·31	7·51
Maximum weight ...	7·75	11	10	9·12
Minimum weight ...	4·61	4·5	5	5·12
No. of Cases	35	70	46	13
NATIVES:				
Average weight	5·86	6·03	5·81	5·7
Maximum weight ...	7·41	7·81	8·27	7
Minimum weight ...	4·62	4·34	4·2	4·09
No. of Cases	18	47	56	21

Puerperal Peritonitis Treated by Abdominal Section: Notes of Ten Consecutive Cases.

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The following cases have arisen consecutively in my practice at Monsall Hospital, and it has occurred to me that they may be worth reporting very briefly. I have purposely very much condensed the notes of each case, so that the salient features only are recorded.

For the original notes I am to a great extent indebted to the careful work of the Assistant Medical Officers, Doctors Reid, Hodge, Arnold, Dawson, Wilkins, Linton, and Pell-Ilderton. For the performance of the operations I am personally responsible.

Case 1. E.S., aged 44, multipara, was admitted to Monsall Hospital on October 3rd, 1905.

The history in this case is very unsatisfactory. The patient was attended by a locum tenens, whose term of engagement expired on the day following the notification of the case, and it was not possible to obtain any details beyond the facts that the patient had been confined on September 27th, and that the forceps had been used.

When I saw her on her admission, she was unconscious and apparently moribund. The temperature was 100·8°, and the radial pulse could not be felt. The cardiac rate was 184. The abdomen was enormously distended and immobile. The perineum was lacerated centrally down to but not into the rectum, and the cervix was torn diagonally into the vagina.

Laparotomy was at once performed, and the abdominal cavity was found to be full of fetid pus; the intestines were greatly distended, and covered with lymph; the uterus was much enlarged and flabby. From the patent end of each Fallopian tube pus was seen to be exuding. No attempt was made to cleanse the peritoneal cavity. Both tubes were ligatured, and a free opening was made into the posterior cul-de-sac, through which a large rubber and gauze drain was inserted, a similar drain being placed in the lower angle of the abdominal wound. Saline infusions with adrenalin were given into the connective-tissue under the breasts. The patient rallied somewhat, became conscious, and expressed herself as comfortable and free from pain, but she gradually sank, and died twelve hours after the operation.

Post mortem, the uterus was found to contain sloughing placental masses. Cultures from the peritoneal pus and from the uterus showed streptococci only. Those made from the blood in the basilic vein during life gave no growth.

Case II. E.B., aged 24, multipara, was admitted to Monsall Hospital on October 24th, 1905.

She had been confined three weeks previously in the presence of a midwife only. The labour is stated to have been easy, but not precipitous. She got up on the sixth day, and was apparently fairly well for three weeks, when she consulted a medical man for pain in the back.

With the history of parturition in mind, he dilated the cervix with Hegar's dilators; no anæsthetic was used, and the cervix was not steadied with volsellæ, no assistance being available. Almost immediately afterwards the patient felt faint, and on the next day she was seriously ill; the temperature was raised, but to what extent is not stated. She became steadily worse, and was admitted three days later.

When I saw her on admission she was obviously very ill; the temperature was 101°, and the pulse-rate was 112; she complained of severe pain over the whole of the abdomen; there was no distension, and nothing to be felt on palpation.

On further examination, under chloroform, the cervix was seen to be torn diagonally downwards and to the left; the deeper part of this wound extended behind the uterus into both broad ligaments, but as no attempt was made to determine the upper limit of the laceration (the surfaces being lightly adherent) it was uncertain whether the peritoneal cavity had been opened up or not; the body of the uterus was about 3½ inches long.

The cavity resulting from the laceration was lightly packed with gauze, and the vagina was then irrigated. The general condition improved somewhat, and the temperature fell, reaching the normal three days later. On October 30th it rose again, and the patient vomited and complained of increased abdominal pain. On the next day she was markedly worse, and on November 1st there was some rigidity of the abdominal wall with slight distension. I then opened the abdomen.

On the right side the Fallopian tube was distended to the size of a sausage, with pus. Near its fimbriated extremity was a hole, through which some pus had escaped into the peritoneal cavity, giving rise to a condition of general peritonitis with turbid effusion. The visceral peritoneum was markedly injected and covered in places with lymph. The intestines were uniformly distended.

There was a similar pyosalpinx in the situation of the left tube, and an abscess in the right ovary, neither of which communicated

with the peritoneal cavity. Behind the uterus, in the middle line, was an abscess, equal in size to a large walnut, shut off by adhesions from the general peritoneal cavity, but communicating with the vaginal laceration below.

The general peritoneal cavity was neither flushed nor sponged out; both tubes and the right ovary were removed, and the abscess behind the uterus was drained into the vagina; a large rubber tube was placed in the posterior cul-de-sac, which was freely opened, and a Keith's tube inserted through the abdominal wound.

With the exception of a sharp attack of bronchitis which occurred on November 17th, and in which the patient nearly lost her life, the recovery was satisfactory, and she left the hospital on January 25th, 1906, well and strong, and with both wounds healed.

Cultures from the peritoneal fluid showed both streptococci and bacilli coli communes.

Case III. B.B., aged 37, nullipara, was admitted to Monsall Hospital on January 13th, 1906.

The history is, that she had had a miscarriage on January 3rd, had remained in bed for two days, and was at work the next day. She did not consult a medical man until January 13th, when she was at once sent to hospital. Accurate information of the onset of the illness could not be obtained, but it appeared that she was not markedly ill until January 11th, when she was seized with headache, vomiting and shivering.

On admission, her condition was exceedingly grave; the temperature was 103·5°, and the pulse-rate 160. There was considerable distension of the abdomen, which was immobile, and there was shifting dulness in each flank. Per vaginam there was bulging effusion into Douglas's pouch. The uterus was fixed.

An opening was first made into the posterior cul-de-sac, and much pus evacuated. It was then found that all the pelvic organs were matted together by adhesions, which could not be satisfactorily dealt with by the vaginal route, so the abdomen was opened forthwith. It was then seen that the peritonitis was general; the intestines were everywhere distended and covered with patches of sticky lymph, and about a pint and a half of pus was evacuated from the general abdominal cavity. Both Fallopian tubes were greatly thickened and inflamed, and pus was exuding through the patent ends. The left ovary was simply a shell containing pus; there was a small abscess in the right ovary also.

Both Fallopian tubes were ligatured and removed; the left ovary was removed completely, and the abscess in the right ovary was excised and its bed stitched up, a portion of healthy ovarian tissue being left. No attempt was made to flush the abdominal cavity, which was drained through the posterior vaginal incision, and also

by a gauze and rubber drain inserted into the abdominal wound which was then closed.

On the next day, the patient was markedly better, and her recovery was subsequently uneventful. She left hospital on April 3rd well and strong.

The leucocyte count before the operation was 22,000. From the peritoneal pus, gonococci and streptococci were found.

It is probable that a condition of chronic gonorrhœa existed before pregnancy in this case, and that the streptococcal infection was due to events which determined the abortion.

Case iv. R.H., primipara, aged 27, was admitted to Monsall Hospital on February 18th, 1906.

She had been confined on February 6th, the labour being easy and of short duration. A medical man was present, but he did not find it necessary to use the forceps, or to introduce his hand into the uterus. The exact date of the onset of the attack of septicæmia which followed is uncertain, inasmuch as the patient was suffering from "bronchitis" at the time of delivery, and felt more or less ill immediately afterwards. On February 13th, however, there was pyrexia, the temperature remaining high from that day until her admission. During that period there were also abdominal pain, sweating and diarrhœa, and continuous vomiting from February 15th. Vaginal douches were given, but no other local treatment was adopted.

On admission, the patient appeared to be moribund. The temperature was 103·5°, and the pulse could not be felt at the wrist. The cardiac rate was 196. The face was pale, and the lips were blue. The abdomen was greatly distended and immobile. Per vaginam, a collection of fluid could be felt behind the uterus, apparently free in the peritoneal cavity; the broad ligaments were greatly thickened.

The abdomen was opened by a long median incision, and a condition of general peritonitis was seen. About three pints of pus were evacuated by turning the patient on to her side. The source of the infection was found to be the left Fallopian tube, from the patent ostium of which pus was exuding. This was ligatured, and free drainage was established through an opening in the posterior cul-de-sac. A tube was also inserted in the lower angle of the abdominal wound. No attempt was made to cleanse the peritoneal cavity. Five pints of saline solution with ten minims of adrenalin were injected under the breasts, but the patient never rallied, and died eight hours after the operation.

A post mortem examination was, unfortunately, not obtainable, but it is probable that the uterus contained some decomposing

products of conception. Cultures taken from the blood during life showed streptococci only, while those from the uterus gave streptococci, bacilli coli communes and staphylococci.

Case v. M.J.H., multipara, aged 23, was admitted to Monsall Hospital on February 23rd, 1906.

The history of this case is very indefinite, inasmuch as the patient was not attended in her confinement by either a medical man or a midwife. She was delivered, however, on February 19th, and the labour was probably easy and of short duration. She felt ill on February 20th, and was seen by the certifying practitioner on February 21st. There was then pyrexia, and on the following day there were repeated rigors, abdominal pain, sweating and diarrhœa.

When I saw her on admission, she was apparently moribund. The temperature was 103°, and the pulse uncountable. The abdomen was uniformly and greatly distended, and immobile. Laparotomy was at once performed, and a condition of general peritonitis found, some three pints of purulent fluid escaping when the patient was turned on her side. The source of this was evidently the uterus.

In the right cornu, adjoining but not involving the Fallopian tube was an abscess cavity, equal in size to half-a-crown, and about half an inch deep, which had a ragged opening, and contained offensive débris. At the extremity of the right tube was a small pyosalpinx. The right tube was ligatured and removed, and, as it was not possible to close the abscess cavity by sutures, and the patient's condition contra-indicated hysterectomy, the uterus was fixed to the abdominal wound, after an opening had been made into the posterior cul-de-sac. Five pints of saline solution were injected under the breasts, but the patient never rallied, and died six hours after the operation.

Post mortem, the uterus was found to be full of placental substance and membranes. Cultures from both the uterus and the peritoneal pus (obtained during life) showed gonococci and streptococci.

Case vi. L.B., aged 27, multipara, was confined on March 2nd, 1906, a medical man being present at the time. The labour lasted for four hours only, and instrumental interference was not required.

On March 8th the patient was taken suddenly ill, with shivering and pyrexia; she was seen by the certifying practitioner, who reported the existence of rigors. These were repeated daily until March 12th, and the pyrexia continued until March 15th. During this period there is also a history of sweating, abdominal pain, diarrhœa and daily vomiting.

She was seen daily by the medical man, who prescribed vaginal

injections, and gave one intra-uterine douche only, viz., on March 8th. The patient was sent to hospital on March 15th.

On admission she appeared to be moribund; there was intense septicæmia, with much prostration. The temperature was 103°, and the pulse could not be counted. There was general abdominal distension, with diminished respiratory movement, and a large mass was easily felt in the right iliac fossa. Laparotomy was at once performed.

On opening the abdomen, the whole of the cavity was seen to be full of pus; the intestinal peritoneum was much inflamed; the intestines themselves were distended and covered everywhere with masses of lymph. Apparently shut off from the general cavity by light adhesions was a large tubo-ovarian abscess on the right side, and the right Fallopian tube was also distended to the size of a sausage with fluid which was subsequently seen to be purulent.

No attempt was made to cleanse the peritoneal cavity. An opening was made into the vagina, behind the uterus, sufficiently free to drain both the abscess cavity and the general peritoneal sac. The pyosalpinx was rapidly ligatured and removed; in this procedure the right broad ligament was seen to be greatly thickened, but was not fluctuating. Drainage tubes were inserted into the vaginal opening and through the lower angle of the abdominal wound, which was then sewn up.

The temperature fell to normal on the third day, and recovery was subsequently uneventful, the patient being discharged well and strong on the 21st May, with the abdominal wound soundly healed.

Cultures from the peritoneal pus showed streptococci only.

Case vii. M.P., multipara, aged 23, was admitted to Monsall Hospital on April 11th, 1906.

She had been confined on March 23rd, only a midwife being present. The labour is said to have lasted for two hours only, and to have been followed by considerable hæmorrhage. She was apparently well until April 3rd, when she had a rigor. A medical man saw her the next day for the first time, and he found a temperature of 100°. On April 8th diarrhœa and abdominal pain were present. No local treatment of any kind was adopted until her removal to hospital.

On admission, her condition was extremely grave, but apparently not hopeless. The temperature was 102°, and the pulse-rate 184. The abdomen was uniformly distended and immobile. There was shifting dulness in each flank.

Laparotomy was at once performed, and a large quantity of turbid fluid evacuated by turning the patient on to her side. The intestines were distended and everywhere coated with masses of lymph. The uterus was enlarged and soft, with pus exuding from

each Fallopian tube. The right ovary was enlarged and evidently fluctuating. This, together with the right tube, was removed. The patient was then placed in the lithotomy position, and the uterus was curetted with a large sharp curette, and much placental tissue removed. The raw surface was swabbed with undiluted izal fluid, and the cavity packed with izal gauze. A free opening was then made into the peritoneal cavity through the posterior cul-de-sac. Large rubber and gauze drains were then inserted through the abdominal and vaginal wounds; no attempt was made to flush or cleanse the peritoneal cavity.

The patient was distinctly better the next day. She subsequently made an uninterrupted recovery, and was discharged well and strong on June 28th.

A film preparation from the abdominal pus showed streptococci only. The leucocyte count in this case before operation was 27,000.

Case VIII. M.C., multipara, aged 32, was admitted to Monsall Hospital on June 21st, 1906.

This history is, that she had been infected before delivery, and that craniotomy was subsequently required on account of contracted pelvis. This operation was performed on June 19th, the date of the onset of pyrexia being June 18th.

I saw her on admission, in consultation with Sir William Sinclair, who had himself also seen the case some few hours previously. There was no doubt in his mind or my own that the patient was *in extremis*, and that recovery seemed scarcely possible. The abdomen was greatly distended and motionless; the temperature 102·8°, and the pulse-rate 196. Respiration was gasping in character; the lips were blue; the face was pale, and there was profuse perspiration. It was agreed, however, that an operation should be attempted.

Accordingly, I opened the abdomen through a small median incision in the first instance; a large quantity of turbid fluid gushed out, followed by a coil of intestine, which was distended, its surface being injected and covered with patches of sticky lymph. A drainage tube was inserted, and this wound sewn up. The patient was then placed in the lithotomy position, and the uterus curetted with a sharp curette, swabbed with a 1 in 500 solution of biniodide of mercury, and packed with mercurial gauze.

A free opening was then made into the posterior cul-de-sac, and the abdominal cavity flushed out through the tube in the abdominal incision until the fluid returning through the vaginal opening was quite clear.

100 c.c. of a polyvalent antistreptococcic serum, prepared from five puerperal cultures only, were given subcutaneously in six pints of normal saline solution. The patient rallied well, and on the next day her condition was greatly changed for the better.

The improvement was maintained, and, with the exception of a pelvic abscess—which was opened by Dr. A. W. W. Lea, who kindly saw the case during my absence on holiday—recovery was uneventful. The patient left the hospital well and strong on September 3rd.

Cultures taken on admission from the blood in the basilic vein showed streptococci, and those from the uterus, streptococci and bacilli coli communes.

The leucocyte count on admission was 16,000, and 18,000 on the following morning.

Case ix. B.M., aged 23, primipara, was confined on October 20th, 1906, a medical man being in attendance. Details of the labour were not furnished, but there is said to have been a rise of temperature for the first time on October 23rd. The patient stated that vaginal injections were given daily by a midwife.

No history of treatment was obtainable from the medical man, but it is probable, from the nature of the injuries to the cervix, that the forceps was applied during delivery. The labour was said by the patient to have been of short duration.

She was admitted to Monsall Hospital on October 25th. The general condition was fair, and the colour good; the temperature was 104, and the pulse-rate 140; there were frequent rigors. The uterus could be felt just below the umbilicus, and there was very little abdominal distension.

On further examination, there was seen to be a central laceration of the perineum down to, but not into the rectum. The cervix was torn diagonally into the vagina, and the lacerated surfaces were covered with grey sloughs. The uterus contained fragments of placenta and some putrid clot.

The uterine wall was well scraped with a sharp curette, and the raw surface swabbed with undiluted izal, the cavity being subsequently packed with izal gauze.

The rigors were repeated on the next day, but on October 27th an improvement set in, and was maintained until November 5th, when an attack of parametritis supervened. The uterus was now found to be fixed, but there was no sign of suppuration. From this point the temperature continued high and remittent, but the general condition was fair and the appetite unimpaired; there was but little pain, and no sign of peritonitis.

On November 23rd the patient was taken suddenly ill with shivering, abdominal pain, and collapse. The abdomen rapidly became distended, and did not move well with respiration. A provisional diagnosis of commencing general peritonitis was made, and laparotomy was performed immediately.

On opening the abdomen, a large excess of peritoneal fluid was seen, which was turbid, but not offensive. There were no adhesions

anywhere; the intestines were distended and covered here and there with small portions of sticky lymph. In the uterine wall, adjoining, but not involving the insertion of the left tube, was an abscess cavity, equal to the size of a shilling, which had evidently only just burst through a small opening, there being no signs of local adhesion. There was also a large cellulitic mass in the parametrium, but no sign of suppuration there.

The abscess cavity was very thoroughly scraped, and swabbed with pure izal, which was subsequently washed away with saline solution. The left tube was ligatured and removed close to the uterine cornu, and the top of the left broad ligament, thus set free, was folded over the site of the abscess, and secured by a double row of Lembert's catgut sutures. The abdomen was then closed without drainage.

No attempt was made to cleanse the general peritoneal surface either by washing or sponging.

Recovery was uneventful; the wound healed well, and the temperature fell to normal 14 days later, by which date the greater part of the parametric inflammation had subsided. The patient left the hospital well and strong, with a movable uterus, on January 31st, 1907.

Cultures taken from the uterus on admission showed streptococci and a bacillus of the coli group. The blood was sterile.

Case x. C.R., aged 34, multipara, was admitted to Monsall Hospital on November 22nd, 1906. She had been confined on November 17th, the labour being easy and of short duration. Neither a medical man nor a midwife was present at the time of delivery, but the latter arrived in time to "extract" the placenta.

On November 19th, she was seen by the certifying practitioner for the first time. He found her with a temperature of 103°, and a rigor occurred shortly after his visit; there was some abdominal pain, but apparently no other sign. She was not considered to be seriously ill, but as the temperature remained high the uterus was curetted on November 21st. A blunt curette is said to have been employed, and some placental débris was removed; the endometrium was douched subsequently with a 1 in 1000 solution of perchloride of mercury, but was not swabbed.

Within a few hours her condition changed for the worse; there was great pain in the lower part of the abdomen, which also became distended, and on the morning of the next day (November 22nd) she was considered to be suffering from general peritonitis. She was then notified for removal to hospital, the hope being expressed that possibly laparotomy might save her life.

When I saw her on admission, she was obviously moribund. The pulse could not be counted, the temperature was 103° and the

respiration gasping in character and entirely thoracic in type. The face was pale, the lips were blue, and the skin was covered with perspiration. The extremities were cold.

My first impulse was not to operate, but the patient's husband and the certifying practitioner were both very anxious that the attempt should be made, so I rapidly opened the abdomen forthwith. A condition of general peritonitis was found, there being about three pints of thick pus free in the abdominal cavity; the intestines were everywhere covered with lymph, both broad ligaments were much thickened, and pus was seen to be issuing from the patent end of each Fallopian tube. Drainage having been established into the vagina and in each flank, the abdomen was closed without any toilet of the peritoneum, and the patient was at once put to bed. Saline infusions (three pints of normal salt solution, 10 minims of adrenalin and 100 cc. of a polyvalent antistreptococcic serum) were given under the breasts. The patient did not rally to any great extent, and died six hours later. The operation lasted ten minutes.

Post mortem, the uterus was found to be full of large portions of placental tissue, which when removed formed together a mass equal in size to a large orange; they were all easily detachable with the finger. There was no sign of perforation of the uterine wall. Both Fallopian tubes were partially distended with fetid pus.

The pus which had been removed from the peritoneal cavity at the operation was found to contain streptococci only, the film preparation being everywhere crowded with them. No other organisms were grown in the subsequent cultures.

In this case the sudden alteration for the worse which took place after the curetting suggests that the latter procedure was responsible for the fatal termination of the case. The removal of the placental remains was obviously inefficient, and it is probable that the use of the intra-uterine douche at the same time determined the infection of the peritoneum. It will be noted that no attempt was made—other than by this douche—to disinfect the surface left after the application of the curette.

Any lengthy comment on these cases is, I think, unnecessary—they tell their own tale, and they are not sufficiently numerous to justify the establishment or condemnation of any general principle. Certain points, however, suggest themselves for consideration.

In the first place, all the patients were in a critical condition when the operation was performed; many, as will be seen, were regarded as being in a hopeless state. While I am well aware of the risk one runs of dragging surgical procedures in the mire of lay disapproval by operating under such conditions, I must express my conviction that one's first duty is to give the individual patient a chance, however slight it may be, and I do not think that the

alternative suggestion that a patient with an abdomen full of pus can recover without operation is worth considering.

Secondly, in only one case (No. viii.) was flushing of the peritoneal cavity resorted to. Drawing for the moment on my own experience of other cases, as well as of those recorded here, I am certainly of opinion that, as a rule, it is best not to flush or even sponge the peritoneal cavity at all, but to rely rather on free drainage at the most dependent part, with subsequent propping-up of the patient in the sitting position, and the subcutaneous injection of saline solution with or without antistreptococcic serum and adrenalin; I may say that I almost invariably give calomel on the second or third day. In Case No. viii. I gladly admit that the flushing which was adopted on the suggestion of Sir William Sinclair may be credited with the patient's recovery.

Thirdly, some of these cases certainly seem to show in what light the isolation hospital is regarded by a certain type of practitioner, viz., as a sort of municipal cemetery. In almost every case of puerperal fever admitted to this hospital which has been attended by the certifying practitioner from the onset, there is a history of much valuable time wasted in the administration of small doses of quinine, internally, and daily vaginal douches. The most that is ever attempted in the way of operative treatment is an intra-uterine douche, and I am not sure that this does not often do more harm than good. One cannot cleanse the uterus in puerperal septicæmia by merely playing on its interior with anything; it needs scrubbing.

SELECT CLINICAL REPORTS.

(Under this heading are recorded, singly or in groups, cases to which a special interest attaches either from their unusual character or from being, in a special sense, typical examples of their class).

I.

A Case of Chorion-Epithelioma of the Uterus with Lutein Cysts in both Ovaries.*

By G. F. Blacker, M.D., F.R.C.P., F.R.C.S.,
Obstetric Physician, University College Hospital, London.

Mrs. A. B., 46 years of age, was admitted into University College Hospital on January 28th, 1907. She had had five children and two miscarriages, the youngest child being seven years old. Twelve months ago she had a period of two months amenorrhœa followed by hæmorrhage lasting for three weeks and accompanied by the passage of some clots. This bleeding was assumed by the medical man she called in to be due to the onset of the menopause, but in view of the further history of the case no doubt she had an early miscarriage. After the bleeding ceased the periods returned and were regular until five weeks before her admission to the hospital. For this length of time there had been a slightly offensive blood stained discharge from the vagina. For the past two weeks there had been some throbbing pain in the vagina, and she said she had been losing flesh for a month or so past. Her bowels were moved regularly without pain, micturition was, however, attended with some difficulty, but her general health had been good until the onset of the present illness. She had suffered from a chronic winter cough for some years, and this was associated from time to time with the expectoration of a little blood. There was nothing of note in the family history. On admission the patient presented a sallow and somewhat cachetic appearance. In the lower part of the abdomen could be felt a smooth rounded not tender tumour which was taken to be the fundus uteri. On vaginal examination the anterior and left vaginal walls were seen to be occupied by a rounded swelling infiltrating the tissues around the urethra and extending on to the lateral wall. This latter portion of the tumour presented a friable and sloughing surface. The intact mucous membrane over the anterior part of the tumour was considerably congested and pressure on the area caused a good deal of pain. The urethral orifice was displaced somewhat to the left of the middle line but a No. 6 gum elastic catheter was readily passed. A similar smaller tumour occupied the right wall of the vagina, lying under

* Communicated to the Obstetrical Society of London and specimen shown, March 6th, 1907.

the mucous membrane, and extending up into the right lateral fornix. The uterus was enlarged and there was a round swelling in the position of each ovary. A few days after admission the patient coughed up a small quantity of blood. An examination of the chest revealed some slight impairment of movement on the right side, weak breath sounds, and some coarse rhonchi. On February 6th the vaginal growths were excised very freely, together with the lower 2·75 cm. of the urethra, and practically the whole of the two lateral vaginal walls, the lower two-thirds of the anterior wall, and a part of the posterior wall. Besides the two main tumours already described three smaller nodules of growth were removed from the lateral and posterior vaginal walls. The raw surfaces left were closed as far as possible by stitching the remains of the posterior wall to the anterior, and the stump of the urethra was brought out through a button hole opening in a flap drawn over it from the anterior wall which, in its turn, was stitched to the cut edge of the mucous membrane below the clitoris. Considerable difficulty was experienced in getting beyond the limits of the growth in the right wall of the vagina as it extended high up into the right lateral fornix, and the raw surface left in this position could not be closed but was plugged with iodoform gauze. The patient made a good recovery from the operation and was able for the first week to retain her urine and to empty the bladder spontaneously.

On examination under the anæsthetic, the body of the uterus was found to be soft in consistence and considerably enlarged; the cervix was healthy; both ovaries were cystic.

Microscopic examination of the growths removed from the vagina showed them to be a chorion-epithelioma, and a week later, therefore, on February 13th, the uterus and appendages were removed by total abdominal hysterectomy. There were slight adhesions about the ovaries and some little difficulty was experienced in freeing the bladder from the uterus owing to the presence of a small nodule of growth projecting from the anterior surface of the uterus and adherent to the bladder. The latter organ had to be dissected free but this was done without any injury to its walls. An iodoform gauze plug was inserted between the cut edges of the vagina, the peritoneum sewn together over this, and the abdomen closed without drainage. No secondary growths were felt at the time of the operation in the abdomen.

Sixteen hours after the operation the patient had a sudden attack of abdominal pain, her pulse became small and feeble, she became markedly blanched and developed some dyspnœa.

An examination of the vagina revealed the fact that a good deal of hæmorrhage was taking place from the granulating surface in the right lateral fornix. The cavity was plugged firmly with iodo-

Fig. 1. Photograph of the uterus and ovaries. The anterior wall of the uterus has been removed showing the growth almost filling the cavity. Both ovaries are enlarged and cystic.

Fig. 2. Photograph of the right ovary laid open showing the lutein cysts in its interior. Note the hæmorrhages into the interior of the cysts, into their walls, and into the stroma of the ovary.

form gauze under chloroform, and the patient was transfused with a pint and a half of saline solution. This treatment led to a rapid improvement in the symptoms and no further bleeding occurred. On the second and third day after the operation the patient had a slight rigor. On the fifth day the vaginal plug was extracted under nitrous oxide anæsthesia.

On the seventh day two more slight rigors occurred, the temperature only reaching 102°F. The patient has, up to the present date, made good progress, although her recovery has been retarded by a somewhat irregular temperature, an attack of diarrhœa, and a good deal of cough, with on two occasions, the expectoration of a little blood. Examination of the chest does not show definite signs of any growths in the lungs although over the scapular and axillary region on the right side there is some impaired resonance with weak breath sounds and in front there are some fine crepitations on taking a deep breath. The abdominal wound is soundly healed and the vagina is almost entirely healed. The signs in the chest taken together with the cough and the slight hæmoptysis are very suspicious of some secondary growths in the lungs, but if there are any possibly they may undergo atrophy as has happened in other cases where the primary growth has been completely removed. Unfortunately, no doubt in part as the result of the constant coughing the patient has lost the control over the bladder which she had for the first week after the second operation, and at the present time there is almost complete incontinence of urine.

The specimen consists of the uterus, Fallopian tubes, ovaries, and some secondary growths removed from the vagina.

The uterus (Fig. I.) is enlarged, measuring 10 cm. at its widest part by 11·5 cm. from fundus to external os. The uterine wall on section varies in thickness from 1 cm. in the left wall to 2·5 cm. in the middle of the right wall of the body where there is a small interstitial fibroid 1·5 cm. in diameter. A few small interstitial fibroids are situated in the right wall of the body and one in the left. The interior of the uterus is occupied by a growth which is invading the uterine wall above and on the right side, and to a lesser extent on the left side. The lower rounded margin of the growth descends to within 1·75 cm. of the internal os; the space left is occupied by blood clot. The growth itself on section has a friable surface and is reddish brown in colour, closely resembling in appearance a mass of blood clot except at its site of origin in the uterine wall where there is a layer of tissue yellow in colour, softish, and rather more granular in appearance than the uterine wall it is invading. The whole surface of the growth presents a homogeneous appearance and there is no evidence of the presence of cysts or of chorionic villi.

The cervical canal, which measures 3 cm. in length, is healthy. Both ovaries are enlarged, the right one measuring 5·5 cm. by 4 cm. (Fig. II.); the left 6 cm. by 5 cm. in its widest part. They both contain a number of cysts distributed throughout their substance, the largest of these being 2 cm. in diameter. The outer surfaces of the ovaries present a greyish red appearance, and the thin walled cysts cause well marked translucent projections on the surface. A section through the right ovary shows four cysts with well defined walls with a smooth surface, containing a clear mucinous fluid and showing a considerable degree of vascularity. Several of the cysts show hæmorrhages into their interior and into the cyst wall. In the stroma of this ovary there is a small quite distinct corpus luteum 6 mm. in diameter. A section through the left ovary presents a similar appearance although in this case the cysts (three in number) do not occupy so large an area of the section. The largest cyst in this ovary shows a definite inner lining which can be stripped away from the cyst wall. There is marked vascularity of the tissues and especially of the stroma. In some of the cysts the mucous contents have coagulated into a jelly like mass *in situ* whilst from others it has escaped.

Both Fallopian tubes are healthy.

The growths removed from the vagina comprise two large tumours and three smaller ones, the largest of these, measuring 6·5 cm. by 4 cm. was attached to the anterior vaginal wall involving the inferior wall of the urethra and extended into the left wall of the vagina. The latter part of the growth had destroyed the mucous membrane and formed an ulcerating and breaking down mass. Intimately united to the upper part of this tumour and removed with it is the lower 2·75 cm. of the urethra which has been laid open along the middle line superiorly. On section, portions of this tumour present a greyish white granular appearance, the tissue is soft and friable and breaks down readily. A smaller growth of similar character was removed from the left lateral wall of the vagina above the larger tumour. An oval mass, 4 cm. by 3 cm., of similar appearance on section, was removed from the right vaginal wall and extended high up into the right vaginal fornix, and two small tumours 1 cm. in diameter were excised from the upper part of the posterior wall of the vagina.

Microscopic examination of the tumour in the uterus (Fig. III.) shows the greater part of it to be composed of fibrin and blood clot. The growth itself is made up of branching columns of polyhedral cells with round or oval vesicular nuclei, arranged in an alveolar manner, while here and there are large cells containing several nuclei. There is an almost entire absence of any large syncytial masses in the uterine growth, although in places strands of syncytium are

Fig. 3. Section of the tumour in the uterus showing columns of polyhedral cells with an alveolar arrangement with a number of large cells containing several nuclei in various parts of the section. No large syncytial masses are to be seen.

Fig. 4. Section of one of the growths in the vagina showing masses of protoplasm with numerous nuclei and vacuolar spaces, together with collections of cells derived from Langhans' layer.

Fig. 5. Section of the wall of one of the lutein cysts in the right ovary, showing: *a*, fibrous tissue of stroma; *b*, layer of lutein cells; *c*, coagulated contents of cyst.

Fig. 6. Section of a portion of the right ovary showing lutein cells scattered throughout the stroma.

interspersed between the cell masses. The growth in the vagina (Fig. IV.), on the other hand, contains large masses of undifferentiated protoplasm containing numerous oval darkly staining nuclei and many vacuolar spaces as well as masses of smaller cells evidently derived from Langhans's layer of the chorionic epithelium which are mingled with the syncytial masses in an irregular manner. Everywhere blood clot and masses of fibrin are present with the tumour elements, even penetrating between individual cells, but there is no connective tissue stroma.

An examination of the ovaries shows that all the cysts (Fig. V. exposed on the cut section are derived from corpora lutea. The great majority of these cysts have no epithelial lining, but two small cysts in the right ovary had an internal lining of several layers of spherical cells. The cysts are limited externally by a layer of fibrous tissue derived from the stroma of the ovary, internal to this there is a well marked layer of lutein cells of varying thickness but present without exception in some portion of the wall of all the cysts examined, and in most of them exceedingly well marked. With the exception of the two small cysts already alluded to, in none is there any lining internal to the lutein layer, although in many places there is a well marked layer of fibrin covering the inner surface of the lutein cells. In both ovaries some lutein cells can be seen between the cells of the stroma (Fig. VI.) some little distance from the nearest cyst, but there is no general distribution of lutein cells such as has been described in other instances. Besides the cysts there is a well marked corpus luteum in the right ovary and a smaller one in the left ovary. In some of the cysts the innermost layer of the fibrous tissue immediately outside the lutein layer, namely the tunica vasculosa, is extremely vascular. If the amount of lutein tissue in the walls of the cysts be taken into account, there can be no doubt that there is an excess of this tissue present in both ovaries.

This case is a good example of the simultaneous occurrence of a chorion-epithelioma of the uterus with lutein cysts in both ovaries. These two conditions have now been found present at the same time in so many cases that such an association must be due to something more than mere coincidence. I am, however, I must confess, rather sceptical as to the truth of the hypothesis which assumes that they stand in a definite causal relationship to one another. That is to say that the development of a chorion-epithelioma in the uterus is due to an excess of lutein tissue in the ovary, and an over-production of the internal secretion of that organ. Such an excess of lutein tissue has now been met with in so many cases of hydatidiform mole and chorion-epithelioma as to constitute a most remarkable fact. If we consider for a moment, however, the changes which occur in

the uterus and in the ovaries in these cases we cannot but be struck by the very marked similarity between them. In the case of the uterus we have an excessive proliferation of the trophoblast or of the epithelium of the chorionic villi, together with the development of cystic spaces no doubt due to serous transudation into the tissues of the villi. In the ovary we have a marked proliferation of the cells of the corpora lutea with the development of cysts possibly of similar origin. In both instances the tissues chiefly affected are composed of young rapidly growing cells such as might be expected readily to respond to any undue stimulus. It seems probable that the cause of the development of a chorion-epithelioma, conforming as it does to the general law of carcinomatous growths in that it affects a tissue which, if we consider the total period of its life, is already old, will be found not to differ from the cause of a malignant growth in any other part of the body and that future researches will prove it to consist in some chemical change in the blood of the patient or in the fluids bathing the tissues of the part affected. Further evidence in favour of such an interpretation is I think to be found in the fact that some excess of lutein tissue has been demonstrated to occur in all cases of normal pregnancy, although not to such a marked extent as in cases of hydatidiform mole or chorion-epithelioma; nor is this surprising when we recollect that in cases of normal pregnancy there is no atypical proliferation of the trophoblast, and therefore we would not expect any undue development of the cells of the corpus luteum.

The experiments of Fraenkel and others, which have been brought forward to support the theory of the important part played by the corpus luteum in presiding over the development of the early ovum are far from conclusive, and although the development of the trophoblast and of the cells of the corpus luteum certainly appear to proceed *pari passu* in these cases of hydatidiform mole and chorion-epithelioma, yet the assumption that one depends upon the other seems to be far from warranted. Many more cases of this kind must be examined critically before we shall be able to come to any definite conclusion on this difficult subject. In this particular case whatever may be the true explanation as to the cause, the fact remains that in the ovaries there is marked excess of lutein tissue and in the uterus there is a typical chorion-epithelioma.

Postscript, April 25th, 1907. As the patient has died since the specimen was shown, it is now possible to complete the history of the case. The general weakness which was so marked a feature from the time of the second operation gradually became more and more evident and the patient wasted rapidly. On March 8th it was found that owing to the constant dribbling of urine, the capacity of the bladder had become greatly diminished. At this time very great weakness

of the leg and thigh muscles appeared, and subsequent examination showed a well-marked reaction of degeneration in the thigh muscles, although the electrical reaction of the leg muscles was normal. On March 17th a secondary growth was discovered on the inner side of the right thigh internal to the femoral vessels. On March 20th the growth which was situated just under the skin and superficial to the fascia was removed. There was practically no bleeding, nearly all the vessels entering the growth appearing to be thrombosed. A week later an examination of the chest showed definite signs (viz., impaired resonance, weak bronchial breathing, and some fine crepitations) pointing to the existence of secondary growths, over the lower lobes of both lungs especially on the right side. On March 29th the patient had two convulsions with clonic and tonic spasms, the second convulsion being followed by a semicomatose condition which lasted for two hours. The fits were thought to be uræmic in origin. The urine was alkaline and offensive, had a specific gravity of 1012, and contained albumen and pus. On the next day the condition was very grave, but there was no paralysis of the arms or legs, the cranial nerves were unaffected and the pupils reacted well. On April 1st the woman gradually sank, and died in a comatose condition.

A post mortem examination showed the abdominal wound to be soundly healed, but in the remains of the vagina there were some small nodules of growth which showed signs of ulceration. There were no growths in the peritoneum. The right ureter and the pelvis of the right kidney contained pus. There were several small growths $\frac{1}{4}$ to 1 inch in diameter in each kidney. There were also a mass of breaking-down growth in the liver and spleen, and numerous growths scattered beneath the mucous membrane of the small intestine. There were no growths in the glands of the abdomen or in those of the chest. Both lungs, more especially the lower lobe of the right lung, were studded with small nodules of growth varying from $^1/_{12}$th to 1 inch in diameter. In the brain there were two secondary deposits in the left parietal and occipital lobes. The spinal cord was healthy and there were no growths in the bones.

II.

Fibromyoma of the Cervix Uteri, weighing 17½ lbs.*

By J. Nigel Stark, M.D., F.F.P.S.G.,

Surgeon, Glasgow Samaritan Hospital for Women; Ex-President, Glasgow Obstetrical and Gynæcological Society.

Fibroid tumours developing in and growing from the neck of the uterus are of frequent occurrence when of the submucous variety; they are then usually pedunculated and project into the vagina. The diagnosis of these polypoidal tumours is very easy and their treatment equally devoid of difficulty. On the other hand tumours developing in the substance of the cervix—the interstitial variety—are rare, as are also those growing subperitoneally. The tumour which I have removed, and which is shown in the accompanying drawing, is a sub-peritoneal or subserous cervical fibro-myoma. It is further to be noted that we can classify cervical tumours not only as submucous, interstitial and subperitoneal, but also, according to the divisions of the cervix, as supravaginal, intervaginal, and intravaginal. This tumour sprang from the supra-vaginal portion of the cervix; it is, therefore, most accurately designated and classified as a sub-peritoneal, supra-vaginal, fibro-myoma of the cervix uteri.

In the majority of text-books upon gynæcology the subject of subserous cervical fibroids is treated with extreme brevity, and yet, though there is no difference in development and growth between them and subserous fibroids of the body of the uterus, their clinical characteristics are frequently very distinct and their surgical treatment is exceptionally difficult. I do not remember to have seen a specimen shown at this Society, and as in a fairly large personal experience of uterine fibroids this is the first growing from the cervix upon which I have operated, I hope it may be considered worth recording.

Mrs. D., 40 years of age, a patient of Dr. McKerrows, Ayr, complained of swelling of the abdomen which had gradually developed for four years and more rapidly during the last six months. She had had four children, the eldest fifteen years and the youngest four years previously, but the last had been still-born owing to the difficulty in delivery, prolonged instrumentation having been found necessary. All the puerperia had been normal except the last, when

* Communicated to the Glasgow Obstetrical and Gynæcological Society, March 27th, 1907.

there had been phlebitis which confined the patient to bed for six months and did not completely disappear for two years. Almost certainly the difficulties and troubles which happened at this birth were caused by the presence of the fibroid tumour then in an early stage of growth. Menstruation, which had begun at the age of 14, had always been regular and normal until a month before I saw her, when the flow had continued for a fortnight but with no considerable loss. This absence of menorrhagia—so common a symptom in fibroid tumours of the body of the uterus—is, as might be expected, a not infrequent feature of the cervical variety. Often there is no evidence of the presence of such a tumour to be deduced from any deviation from the normal standard of the menstruation of the patient. Leucorrhœa was a very trifling symptom, and from this we may conclude that there was no endometritis. The functions of the bowels were performed regularly and naturally, and this again is what might be expected as the tumour grew behind the bowels and therefore did not press upon and obstruct them as the commoner corporeal fibroids so frequently do.

Though the swelling of the abdomen had been increasing for four years there had been practically no pain until the last three months, when it began to be felt, not however over the tumour but in the right hypochondriac region. It was gnawing in character, increased by exertion, but not constantly present.

The patient was stout and well-nourished, the mucous membranes had a good colour, the appetite was excellent, and the heart, lungs and kidneys were normal.

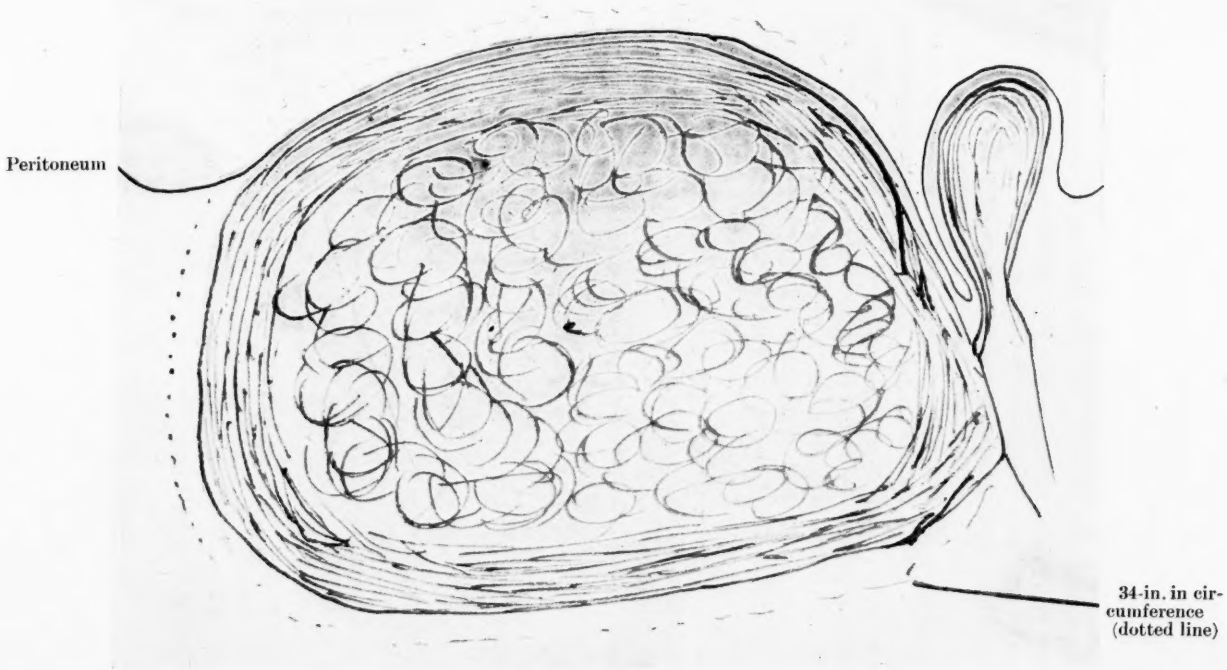
Upon examination it was found that the abdomen was greatly and symmetrically enlarged, the umbilicus being quite smoothed out and level with the adjoining skin. Anteriorly, the percussion note was dull, and, in the flanks, tympanitic. A large tumour could be felt rising out of the pelvis, smooth and regular in outline except in front and in the middle line midway between the symphysis pubis and the umbilicus, at which point a small mass, about equal in size to ordinary Seville orange, could be grasped by the fingers of the examining hand and could be moved freely from side to side.

On vaginal examination the abdominal tumour could be felt to be bulging down into the posterior fornix, firm and resistant, but pressure did not cause pain. The vaginal portion of the cervix was high up behind the symphysis pubis and the external os was touched with difficulty, being almost out of reach of the finger.

At the operation on the 17th of January I opened the abdomen in the middle line to the extent, ultimately, of 9½ inches. The tumour presented at once and it could then be seen that the fundus and body of the uterus were about normal in size and projected above the tumour on its anterior aspect. Omentum and bowel were adherent to the tumour at its upper and right side. Some of the ad-

hesions were easily separated, others only with great difficulty, whilst others again were ligatured and divided. The whole mass was then found to be firmly fixed, and, as it could not be brought out of the wound, I made a transverse incision across the tumour, dividing the peritoneum which I then stripped upwards and downwards, thus baring the anterior, lateral, and posterior parts of the growth. Working, chiefly with the fingers above, downwards and behind, I next loosened it from its posterior attachments and here the bleeding was exceedingly profuse owing to enormous veins having been divided, while, at the same time, the aorta, the vena cava and the iliac vessels could be both seen and felt with somewhat disconcerting vividness. The tumour was then caught and raised up by a strong volsella and the broad ligaments were clamped, sutured and divided in sections until the uterine arteries were secured. A circular incision was next made low down, beginning behind the tumour, after it had been completely dissected from its posterior attachments, and was continued until the cervix was cut across. By this means the mass was amputated and along with it were removed the right ovary and tube, the ovary being thoroughly degenerated. Many large blood-vessels which ran into and from the tumour and which had been temporarily clamped were then ligatured. When all bleeding points had been secured, the cervical flaps were sutured and the next steps were to dispose of the huge flaps of loose peritoneum which had been stripped from off the tumour and to cover the large raw surface on the posterior abdominal wall from which the tumour had been removed. I was obliged to cut away large pieces of the peritoneum and then, after stitching together with catgut what was left, the raw portion was covered over. The peritoneal cavity was thoroughly washed out with saline solution and the abdomen closed in three layers. The patient made a perfect recovery.

The tumour weighed 17½ lbs.; it measured 34 inches in circumference from below upwards and 27 inches from side to side. The body of the uterus, freely movable and not implicated in its mass, was perched upon it on its anterior aspect. The cause of the pain from which the patient had suffered of late was evidently the peritonitis which had occurred at the right upper portion of the tumour and the extensive adhesions between it and the omentum and intestines which had formed in consequence. It is, however, remarkable that at an early stage of its growth the tumour had produced so little injurious pressure. Undoubtedly the difficult labour was caused by it, but there were practically no other bad effects. This is most unusual, as, especially in certain varieties, irritation of the bladder is almost a constant symptom and at the menstrual periods retention of urine occurs. In this case growth must have been very gradual and the pelvic and abdominal organs must have been so slowly displaced that they had accommodated themselves to their altered



Diagrammatic sketch of Dr. Nigel Stark's specimen of Cervical Fibromyoma.

relations. The tumour grew exactly from the posterior median portion of the cervix and not, as has been found in other cases, from a point more to the left. Such a tumour has the sigmoid flexure raised above it and spread out flat on its surface. Fortunately in this case the more median position of the tumour averted this complication, but still, as the pouch of Douglas had been obliterated and the peritoneum had been raised over the tumour which was therefore bound down in direct contact with the posterior abdominal wall, the operation was one of great difficulty and severity. It was most embarrassing to find that there was no pedicle to this heavy, solid, fixed tumour, and that it was necessary to make one. Howard Kelly says in his "Operative Gynæcology" that "these are the cases which are the hardest to handle and which give the highest mortality," and Lewers, after describing one which he had seen, says of the operation that it was "the most difficult one of the kind that has ever occurred in my practice."

The dangers of the operation are, of course, those common to all hysterectomies, viz., sepsis, hæmorrhage, and shock, but in a greater degree. With regard to the first and second of these I need say nothing. Their prevention lies in a careful preparation and in an equally careful technique, but shock is produced by a variety of causes some of which are not always easy to prevent. It would occupy too much time if I entered into an exhaustive discussion regarding its causes and treatment, and I content myself by stating that, in my opinion, saline injections beneath the mammæ should be administered almost as a matter of routine before or at the close of every prolonged operation, and that strychnine should be given in practically every case in which abdominal section is performed. By the employment of these two measures shock can be avoided in many patients. Earlier in my practice I delayed the use of strychnine until a patient was really ill and in a dangerous condition, but now in all prolonged operations or operations upon weak, debilitated or anæmic women I order hypodermic injections of one-sixtieth to one-thirtieth of a grain whenever the patient is back to her bed, and have them repeated at short intervals—from half-an-hour to two hours. The effect is often wonderful, especially if the drug is injected into the abdominal wall. It need scarcely be said that when shock has occurred one would not trust to those two therapeutic measures alone, but would do everything else which would tend to maintain an equable blood pressure (upon which the circulation depends for efficiency), and that while stimulating, we would not forget that exhausted and starved organs require nourishment.

This is, however, a digression and, returning to the subject of cervical fibromyomata, I would emphasize the fact that these cases deserve our attentive study as, judging from the one here narrated, they may attain a large size and a heavy weight before producing

many serious symptoms, the patient, in truth, being unaware that she is bearing about with her a large uterine tumour. They are frequently most formidable tumours to operate upon from the difficulties which have been already discussed, and which vary chiefly according to the position of the cervix from which they take their origin. I cannot say what has been the weight of the largest of these tumours which has been removed, but, so far as I can ascertain, the average weight seems to have been about 5 lbs. Lewers mentions one of 9½ lbs. A weight of 17½ lbs. must be almost "a record," and it added very much to the practical difficulties of raising the tumour from its resting place and of securing the enormous veins—many of them being of the calibre of the little finger—which passed between the vena cava and its branches and the substance of the tumour. During the course of the operation the idea of saving the uterus occurred to my mind, and I saw that it was perfectly feasible. Had the patient been younger and unmarried I would have endeavoured to carry the thought into execution, but she was 40 years of age, she had three living children, and, moreover, it was evident that it would take longer time to separate the uterus from the tumour than to perform hysterectomy. I therefore acted as I did and do not regret having done so. Under other circumstances I might possibly have endeavoured to leave the uterus.

III.

Eclampsia and Nephrectomy.*

By Spencer Sheill, M.R.C.P. (Dublin),
Ex-Assistant-Master, Coombe Maternity Hospital.

It was a strange but interesting coincidence that Dr. J. Haig Ferguson, of Edinburgh, should have published in this Journal of March last details of a case of pregnancy in a patient with but one kidney, just about the same time as I read before the Obstetrical Section of the Royal Academy of Medicine in Ireland what I might term the "grand finale" of a somewhat similar case. Under the title of "A chart representing three years in the life of an eclamptic," I endeavoured faithfully to record the three years of married life of a patient from whom one kidney had been previously removed for tuberculosis. The nephrectomy was performed in the year 1900, and in 1904 she married and soon became pregnant. It was not until March 1905, that the patient came under my care; she was then recovering from an eclamptic seizure and was about six months pregnant. Morphia, with the general treatment usual in such cases, was adopted successfully, for after seven severe seizures the fits ceased. The diagnosis of death of the fœtus was then made, and taking into account the presence of great œdema, much albumen, scanty urine, and only one kidney, past experience in such cases prompted me to perform induction of labour. The operation was rapidly successful. The baby was dead. The patient made a quick recovery. Fuller details of this case were published in the *British Medical Journal* of June 24th, 1905, together with four other cases of "Labour induction."

In August of the same year the patient again consulted me. She was pregnant about three months and a half. Examination of the urine showed commencing kidney failure, the urea was decreasing in amount and albumen was present. Her legs were œdematous. Under the influence of a purely milk diet, diuretics, etc., she improved greatly, but during the following December the albumen returned in the proportion of 1—1000. In spite of rest and all treatment the symptoms of kidney insufficiency increased in severity, until on the 26th of December her face became swollen. One week later the urine was very scanty and boiled solid, and the patient was becoming dull and stupid in manner. The fœtal heart was heard. Nothing now seemed to improve her condition, so I decided to induce labour as

* Read before the section of Obstetrics at the Royal Academy of Medicine in Ireland, April 12th, 1907.

she was 8 months pregnant and there was a prospect of saving the child. It also appeared to me the only chance for the mother.

Accordingly, on the 8th January, this was done, and a living male child was born (as I write, this child is alive and healthy). Three hours after the birth of the infant she had a severe eclamptic seizure, she was promptly put under the morphia treatment, and made a rapid recovery with no return of the fits. The mother nursed this infant for six months and enjoyed excellent health. The urine, which had fallen to 14 fl. oz. in 24 hours, in three days rose to 60 fl. oz.

By February there was no trace of albumen in the urine.

At this time I spoke very plainly to the patient and her husband and relations regarding the dangers of another pregnancy, but my advice was of no avail, for on the 16th of the following November I found her two months advanced in her third pregnancy. Her remaining kidney was now much enlarged, very tender, and very movable, and it could easily be felt by the patient herself. The urine was scanty and contained albumen. She had eye symptoms which suggested severe intoxication of nerve centres. Ten days later the amount of urine in 24 hours fell to 26 fl. oz. Dr. Boxwell, of the Meath Hospital, kindly tested a sample and reported urea 5½ grains per fluid ounce and albumen 0·15 per cent. The advisability of inducing abortion was considered on account of the critical condition of the patient, and on the 5th December, when the urine passed fell to 14 fl. oz., and the urea contained was but 7½ grains per fluid ounce (the albumen remained at 0·15 per cent.), with the aid of Drs. Stokes and Boxwell, I performed the operation under anæsthesia at one sitting, removing a fœtus and placenta of about 3 months' development. The patient made a rapid and uneventful recovery, and 48 hours later passed 40 fl. oz. of urine containing but a trace of albumen and much urea. On weighing over carefully all the circumstances of the case I believed that the weight of evidence was against this woman ever carrying through another pregnancy successfully. On three occasions her kidney had shown that although quite competent to cope with the demands of the system under ordinary conditions it was utterly unable to rise to the occasion of a pregnancy, and each time showed less reserve force; for, although it was the second pregnancy that I brought to a successful issue, yet during the whole of that gestation period she was under special care and treatment, whilst in the first the alarm was only sounded on the advent of an eclamptic seizure at six months. Probably this one might have been carried through satisfactorily had she been under treatment sufficiently early. As for the third and last her condition was so alarming at two months that all efforts were required to save the patient herself.

These reasons and the fact that she had a living, strong child, prompted me to recommend to herself and to her husband that she

should submit to an operation for the prevention of possible future pregnancies. This they agreed to, and on the 24th of January 1907, a portion of her Fallopian tubes was resected.

This case appears to me to raise some interesting points. The question of advising against marriage at all, or of its postponement till the menopause is, I think, hardly to be entertained, for it is unlikely to be seriously considered. But I agree with Dr. Ferguson in the opinion that we ought to advise against marriage sooner than, say, three or four years after nephrectomy in order to allow of a physiological hypertrophy of the remaining kidney.

The induction of labour in threatened eclampsia if the child is viable, and if the mother's condition resists less radical treatment, has been successful in my hands on several occasions. It is, in my opinion, the best treatment for all concerned.

The total amount of urea excreted by the kidney in 24 hours is a very important guide; had I gone by the amount of albumen alone (which never rose beyond 0·15 per cent. in the last pregnancy) I should have had a very false notion of the work done by the kidney and of the intensity of the intoxication of the patient, for although we cannot estimate the amount of toxins present except by their effects, we know by experience that as urea excretion diminishes markedly, so will symptoms of toxæmia assert themselves.

Then the important question of the absolute prevention of further pregnancies by operation presents itself. If the patient has shown her utter incapability of carrying a pregnancy through successfully I believe resection of the tubes is to be strongly advised in the interests of all concerned.

REVIEW OF CURRENT LITERATURE.

PHYSIOLOGY, PATHOLOGY, ETC.

(1) OBSTETRICS.

The Blood Pressure during Pregnancy and the Puerperium.

VOGELER (W. J.). *Amer. Journ. of Obstet.*, April, 1907.—These observations were made at the Nursery and Child's Hospital, New York. Many of the women come in when not far advanced in pregnancy, and thus enable continuous observations to be made on the same patient. A modification of the Riva-Rocci sphygmomanometer was used with a wide armlet, the patient being in the dorsal position. Cases showing variations between 100 and 150 mm. were classed as normal. Readings taken from fifty cases show that during the earliest months of pregnancy the pressure is about normal, gradually rising during the last eight weeks, and reaching a maximum at the beginning of the last week before delivery, when there is a slight and unimportant decline. This result is in accordance with some observations which were made at Queen Charlotte's Hospital, and recorded in a table published in this JOURNAL in September, 1906. During labour the blood pressure fluctuates violently with the pains, and the results are considerably vitiated by excitement and other factors which cannot be eliminated. Soon after delivery there is a rapid fall of pressure, which may be further lowered by any manipulation inside the uterus. During the puerperium the blood pressure may reach a point a little higher than in the early months of pregnancy, that is, it has practically returned to normal. Here it continues with slight daily variations. In about 50 per cent. of these cases with normal blood pressure, albumen in varying amounts was detected in the urine at various times, and some relationship between the amount of albumen and the height of the pressure was traced. Pressures below 100 were found in cases of shock or severe bleeding. High pressures, 180 and over, may be found in cases of eclampsia and toxæmia. The author is impressed with the value of blood pressure estimations in cases in which there is little or no albumen in the urine and in which further evidence of toxæmia can only be found in disturbances of the nitrogen partition. One might add that in this class of case and during recovery after eclampsia the blood pressure affords information which helps one in forming a prognosis. C. NEPEAN LONGRIDGE.

Contribution to the Study of Eclampsia.

GUTBROD. *Monats. für Geburts. und Gynäkol.* Bd. xxiv., Heft 5.—The author records the case of a patient in her fourth pregnancy who in her first two pregnancies had suffered from eclampsia. Her third pregnancy ended in abortion. He administered potassium iodide, and, although threatened with abortion at the fifth month, the pregnancy went on to full term. He was called to see the patient a year later, when she suffered from convulsions (eclampsia) during her fifth labour. The fact that the fourth

labour had passed off without any eclamptic seizures after the administration of potassium iodide leads him to consider it a proof of its efficiency as a prophylactic. E. SCOTT CARMICHAEL.

Parathyroid Insufficiency in its Relation to Eclampsia and Tetany with Special Reference to the Antitoxic Action of the Parathyroid Glands.

FROMMER. *Monats. für Geburts. und Gynäkol.* Bd. xxiv., Heft 6.—The parathyroid glands of rabbits and bitches were removed partially or completely. In non-pregnant animals the removal of these glands has no marked effect on the general health. The implantation of placental substance, however, into the abdomen of an animal in which the parathyroids had been removed caused fatal tetany. A pregnant bitch whose parathyroids had been removed suffered from temporary eclamptic seizures and tetany, while a pregnant rabbit died 11 days after parathyroidectomy of fatal tetany. The author believes that the normal placenta contains more or less toxic substances which are counteracted by some substances in the body probably produced in the parathyroids, and that parathyroidectomy in a pregnant animal will cause death due to toxic action of the placenta. E. SCOTT CARMICHAEL.

Removal of the Thyroid Gland and Pregnancy in its Relation to Tetany and Nephritis.

CARO. *Mitteilung. aus den Grenz. der Med. und Chirurgie.* Bd. xvii., Heft 3.—Partial and complete removals of the thyroid gland were carried out in pregnant cats and bitches. Extensive removal of the gland was often unassociated with any symptom, while in some animals removal of a small portion caused tetany. Although it might be expected that diminution in its functional activity during pregnancy would lead to tetany more readily than in the non-pregnant condition, Caro's experiments do not bear this out. He believes therefore that hypertrophy of the thyroid gland must not be looked upon as a regular accompaniment of pregnancy, but is often an individual peculiarity. The increased tendency to tetany during pregnancy is not constant in all cases, as individual cases are recorded in which complete removal of the thyroid was followed by normal pregnancy. Cats, however, after removal of the thyroid, were extremely liable to tetany and death when pregnancy supervened, and more especially did they tend to suffer from nephritis. E. SCOTT CARMICHAEL.

The Influence of the Injection of Placental Substance Intravenously in Rabbits.

MARTIN. *Monats. für Geburts. und Gynäkol.* Bd. xxix., Heft 5.—Experiments were carried out for the purpose of verifying the statement made by Veit, that the circulation of chorionic villi or their constituents in the blood was a cause of eclampsia. One horn of the uterus was removed in a pregnant rabbit and an emulsion of the placental substance made. Two series of experiments were carried out; in the one an intravenous injection was made into the same animal from which the uterus had been removed, in the other series injection was made in animals in which an artificially induced nephritis was brought about. The results in both cases were negative. The author, at the same time, believes that it is impossible to draw deductions to the human subject from these experiments on animals. E. SCOTT CARMICHAEL.

(2) Ovary.

Cyto-toxines of the Ovaries.

Dobrowolski (S.). *Gynäkologische Rundschau.* Bd. i., Heft 3.—It is well known that the ovaries have two functions—(1) ovulation, and (2) an internal secretion which has an important influence both on the genital organs and on the general metabolism of the body. The literature of the subject, especially that bearing on the internal secretion, is carefully reviewed by the author, who lays especial stress on the work of Fraenkel on the function of the corpus luteum. Up to the present no one has been able to separate those parts of the ovary which fulfil these two functions, especially that part which has such a profound influence on the general metabolism. The author supposed that if he investigated the cyto-toxines contained in the various parts of the ovaries he might be able to separate from one another the sources of these functions; he hoped to be able to prepare two sera (1) which when injected into animals would kill the developing ovum and prevent conception, and (2) which would produce severe general symptoms. He separates his experiments into four groups:

1. (i.) An iso-toxic ovarian serum was prepared by injecting the ovaries of early pregnant rabbits under the skin of another female rabbit. For this purpose the ovaries were pounded in a mortar with sterile water. The latter rabbit was killed after an appropriate length of time, and a serum prepared from its blood. This was injected into young non-pregnant rabbits. It produced no bad effect, and later on these rabbits, after being put to a male rabbit, became pregnant and produced healthy young. (ii.) A hetero-toxic serum was obtained for rats. The ovaries of rats were injected into female rabbits. These were killed and a serum obtained from their blood. Three rats were injected with this. One was killed, and showed marked emaciation; the ovaries were hyperæmic and the other organs normal. The other two were allowed to live, and, later on, produced healthy young. (iii.) A hetero-toxic serum was obtained for guinea-pigs from a rabbit, who had been injected with the ovaries of guinea-pigs. The serum was injected into two guinea-pigs; both showed great emaciation and weakness, and died; there was complete disappearance of all fat. Three more were injected; two died; the other lived, and later produced healthy young. (iv.) In the same way a hetero-toxic serum was obtained for dogs by injecting a sheep with dogs' ovaries. The serum obtained from the sheep was injected into dogs; these all died, and showed complete disapearance of fat; there were no bony changes; the ovaries were normal.

2. In this group of experiments the corpus luteum alone was used for injection. The contents of the corpus luteum of a cow were injected into the peritoneum of a rabbit. The serum obtained from the rabbit was injected into two dogs—one young and one old. The former died, and exhibited the same changes as the dogs in the first group. The old dog bore the injections better; it became only slightly emaciated, and did not die. Thus this serum had the same effect as injecting the whole ovary, but was weaker.

3. In this group experiments were made to show how the serum was affected by heat. A hetero-toxic serum was prepared for dogs by injecting the ovaries of dogs into a goat. The serum obtained was heated at 60°C. for two hours. Dogs injected with this all became emaciated, but to a lesser degree, and did not die. Controls were made by injecting dogs with the unheated serum; they all died.

4. In this group efforts were made to prepare an anti-cyto-toxic serum to combat the effects produced by the cyto-toxic serum. Great difficulties were experienced in this, owing to the toxicity of the cyto-toxic serum. Ultimately a rabbit which had been injected with the latter serum survived, and was killed. A serum was prepared from its blood, and was injected into a dog, which had been injected some time before with the heated serum, and which, ever since, had been steadily decreasing in weight. After the first injection the dog improved steadily. He was killed later. Post mortem: in spite of some emaciation fat was present in all the usual places.

The author tabulates his results as follows:—

1. He has prepared a cyto-toxic serum which acts on the general metabolism without influencing the ovaries or ovulation.

2. The experiments show that the ovary or corpus luteum has an important internal secretion; the evidence seems to show that it is contained in the corpus luteum. It has a profound influence on the general metabolism. The author draws certain comparisons with clinical phenomena, such as the deposit of fat in women who have ceased to ovulate, scanty menstruation in very fat women, and the rarity of pregnancy in such women.

3. The iso-toxic serum has no effect on the organism, and has the same value as the injection of ovary or corpus luteum.

4. The specific effect is produced only by the hetero-toxic serum, and is the same whether the serum is prepared by injection of the whole ovary or of the corpus luteum only.

5. The effect is certain if used in animals in the height of sexual development, and is very toxic, producing emaciation, and ending in death.

6. If the serum be used in an old animal the general effect is similar to that produced in a young animal, only less in degree.

7. By heating the serum its effect is diminished but not destroyed.

8. An anti-cyto-toxic serum has been produced which protects against the cyto-toxic serum.

9. Neither the cyto-toxic nor the anti-cyto-toxic serum causes microscopical changes in the ovaries, bones or other organs.

Although the author considers his results to have only a theoretic value, he thinks it quite possible that such sera may have a therapeutic value; he thinks that the anti-cyto-toxic serum may have some value in the treatment of osteo-malacia. He considers this disease to be very closely related to the condition which he produced in animals by the injection of the cyto-toxic serum.

Although this is a very suggestive paper, some of the deductions seem to be somewhat hypothetical and to be based on somewhat incomplete experimental evidence, especially with regard to the preparation and effect of the anti-cyto-toxic serum. EARDLEY L. HOLLAND.

Ovarian Grafting in the Human Subject.

PANKOW. *Münch. med. Wochnschr.*, February 26th, 1907.—In the Freiburg Frauenklinik seven autoplastic and two homoplastic transplantations were performed four times for hæmorrhage and three times for dysmenorrhœa and osteo-malacia. The menstrual periods appeared from 3—6 months after operation, preceded by climacteric symptoms. The dysmenorrhœa was unrelieved, but hæmorrhage and osteo-malacia were markedly improved. E. SCOTT CARMICHAEL.

Transplantation of Human Ovaries.

CRAMER (H.). *Münch. med. Wochnschr.*, 1906, No. xxxix.—The first experiments on ovarian transplantation were performed ten years ago by Knauer. He extirpated the ovaries of an animal and implanted them into the peritoneal cavity of the same animal, and found that in such cases normal pregnancy might ensue. Ribbert later observed that after homoplastic transplantation in guinea-pigs the germinal epithelium, the tunica albuginea and the superficial layer of the cortex survived and proliferated, whilst the central part of the stroma with its included follicles degenerated. Knauer confirmed this observation. In heteroplastic transplantation (*i.e.*, transplantation from one animal to another) much less successful results were obtained. In 13 cases the ovaries only partially survived in two. In transplantation from carnivora to herbivora atrophy rapidly ensued. Foa obtained good results in the transplantation of the ovaries of new-born rabbits, whilst with adult rabbits he had little success. These experimental results suggested the possibility of the transplantation of human ovaries. Frank first reported such cases. After resection of the uterine appendages a portion of healthy ovarian substance was re-implanted into the stump of the Fallopian tube. Pregnancy occurred in two such cases. Morris transplanted from one woman to another, keeping the transplanted portion of ovarian tissue in warm salt solution from one cœliotomy to the next. Atrophy of the transplanted ovarian tissue followed. Cramer considered that success might be obtained if the two cœliotomies were performed together, so that the transplanted tissue need not be kept in saline solution, and Ribbert and Knauer suggested that the central portions of the ovary which always degenerated, should be excised. Cramer has performed heteroplastic transplantation of the ovaries on these lines in two cases, using the ovaries removed from osteo-malacic cases. He justifies the use of osteo-malacic ovaries, as careful microscopical examination shows them to be normal in structure. His first case was that of a woman, aged 23, who suffered from superinvolution of the uterus and ovarian atrophy, with all the symptoms of a premature menopause well marked. This patient and one suffering from osteo-malacia were simultaneously operated on, the ovaries of the osteo-malacic patient being implanted on to those of the patient suffering from superinvolution. Both patients recovered. The superinvoluted uterus increased in size, menstruation returned, the symptoms of the menopause disappeared, and four and a half months after the operation pregnancy occurred. Unfortunately it ended in abortion. The second case was that of a woman aged 36, who four years previously had had the whole internal genitals removed by laparotomy on account of severe dysmenorrhœa. After the operation she suffered so severely from climacteric disturbances as to be quite incapacitated. The prolonged use of ovarian tabloids produced no improvement. The two patients were simultaneously operated on, and the osteo-malacic ovaries were split open, the stroma was removed, and one ovary was sewn on to the peritoneum of the anterior abdominal wall, the other on to the posterior surface of the right broad ligament. In each case the superficial layer of the serous membrane was scraped with the knife before the transplanted ovary was applied. Within ten weeks the transplanted ovaries were entirely absorbed.

FRANK E. TAYLOR.

Contribution to our Knowledge of the Menstrual Cycle.

HERWERDEN (M. VAN). *Monats. für Geburts. und Gynäkol.*, 1906. Bd. xxiv., Heft 6.—The results described are derived from an investigation upon the menstrual cycle in Cattarhine monkeys. Eighteen menstruating uteri and 42 uteri from the inter-menstrual stage were examined. The mucosa of the menstruating uteri varied in thickness according to the period of the year. Menstruation occurred in the non-breeding season without any evidence of being associated with ovulation. The superficial mucosa was found to be denuded during menstruation, but the denudation only extended to a portion of the epithelium. The author discusses the significance and phylogenetic history of menstruation, pointing out that in the primitive primates there is an uninterrupted succession of "heat" periods, at each of which conception is possible.

The absence of correspondence between menstruation and ovulation is cited as showing that the Born-Fraenkel theory of the origin of menstruation cannot be accepted. E. SCOTT CARMICHAEL.

OBSTETRICS.

Treatment of the Vomiting of Pregnancy.

DUMAT (H. A.). *British Med. Journ.*, 1907. Vol. i., p. 684.—Dumat considers the vomiting of pregnancy to be due to faulty metabolism, and that in the early stages of pregnancy the principal organ to throw off the metabolic poison is the stomach—hence the vomiting. He endeavours (1) to remove the metabolic poison already formed, and (2) to prevent the formation of more toxin. He endeavours to remove the poison by (*a*) washing out the stomach, and (*b*) breaking up the structure of the poison by administering 2 to 4 gr. of potassium permanganate, and then washing out the stomach. The drug has never had any ecbolic action. To reduce the formation of toxin and regulate metabolism 5 gr. of thyroid extract are administered three or four times a day. Cases illustrating the results of this method of treatment were published in the *South African Medical Record* of December 15th, 1905. FRANK E. TAYLOR.

Gonorrhœa in Pregnancy and the Puerperal State.

DAVIS (E. P.). *Amer. Jour. of Obstet.*, 1907, vol. lv., No. 4, p 474.—This paper opens with the statement that acute gonorrhœa does not prevent conception, and that pregnancy frequently proceeds in a gonorrhœal patient with very little disturbance, causing the patient to minimise the significance and dangers of the complication. During pregnancy gonorrhœa may cause endocervicitis and endometritis, resulting in adhesion of the fœtal membranes about the internal os; this may result in premature rupture of the membranes. Local treatment is advised during pregnancy, by douching, the direct application of antiseptics to the vulva, vagina and cervical canal, or ichthyol tampons. Attention is drawn to the fact that many patients may pass through the puerperal period

without apparent disturbance; but some weeks after labour evidences of pelvic inflammation may develop which may subsequently cause the death of the patient. In other cases evidence of infection may develop within a few hours after labour. The author does not record his opinion as to the use of douches during the puerperium in these cases.

C. NEPEAN LONGRIDGE.

Prolonged Gestation.

ALLEN (L. M.). *Amer. Jour. of Obstet.*, 1907, vol. lv., No. 4, p. 541.—A short review of the literature of this important condition is given, from which it appears that the longest gestation recorded in the human race occurred in a case of Schlichting's; in this case the pregnancy lasted 334 days. It would be interesting to know if the child was alive at the end of this prolonged gestation. The difficulty of estimating the date of confinement is shortly discussed, and attention is drawn to the advisability of terminating a pregnancy in which there is evidence that the child is becoming overgrown. Histories are given of six cases in which pregnancy continued for about a month beyond the expected date of the termination. In all these cases the child was considerably over the average weight, weighing over ten pounds in three of the cases. C. NEPEAN LONGRIDGE.

A Case of Premature Birth of Twins.

MARTYN (H. S.). *British Med. Journ.*, 1907. Vol. i., p. 623.—A primigravida, aged 23, was delivered of female twins at about the thirtieth week. The infant first born lived only a few hours. The second child rapidly followed; it weighed 1 lb. 14 oz. It survived. The case is reported in view of the weight and age of the child at birth, and the successful issue without incubation. FRANK E. TAYLOR.

Pyosalpinx in Pregnancy and Confinement. Report of a Case of Multiple Pregnancy at Term Complicated by Double Pyosalpinx.

ELBRECHT (O. H.). *Trans. of the Amer. Assoc. of Obstet. and Gynecol.*, 1905. Vol. xviii., p. 13.—A iii.-para, aged 23, with no evidence of acute gonorrhœa, was normally delivered at term of twins. Symptoms of ordinary sapræmic infection of the puerperal uterus followed, with death on the seventh day. Cultures of the blood taken on the fifth day remained sterile. At the autopsy general purulent peritonitis was found. The omentum extended down to the left side of the pelvis, where it was firmly adherent to the fundus of the uterus and to the left Fallopian tube. The uterus, which was about equal in size to a four months pregnant uterus, was very soft and flabby. On section it showed two placental sites and sapræmic infection of the endometrium. The left Fallopian tube was a pyosalpinx, equal to the width of two fingers. At its outer third was a rupture, 5 mm. in length, which allowed the escape of creamy pus. The left ovary was normal and uninfected. The right Fallopian tube formed a pyosalpinx equal in size to a lemon. The abdominal ostium was patent. The right ovary contained a large abscess. Gonococci were demonstrated in the pus from the tubes. "The course of her disease was very misleading, for she certainly had a puerperal sapræmic endometritis,

which completely disguised the ruptured pyosalpinx, and hence my attention was not attracted to any intra-abdominal complication excepting the pelvic peritonitis, which I naturally considered as being secondary to the intra-uterine infection." Elbrecht believes that the pyosalpinx was unilateral at the time of impregnation, and that the infection was transmitted by the escape of virulent pus into the open abdominal ostium of the unaffected side. He also notes the scarcity of literature on the subject, and quotes cases reported by Hare, Talley and Blank. FRANK E. TAYLOR.

In Treatment of Puerperal Eclampsia.

ZINKE (E. G.). *Trans. Amer. Assoc. of Obstet. and Gynecol.*, 1905. Vol. xviii., p. 264.—Zinke bases his treatment of cases of puerperal eclampsia upon the theory that this disease is due to an accumulation of a toxin or toxins—the exact nature of which is unknown—within the maternal organism, resulting from an imperfect or insufficient elimination of the effete elements produced by the fœtal metabolism. He treats the subject systematically as follows:—

1. *The Prophylactic Treatment.*

(*a*) *Prophylaxis before the appearance of symptoms.* All the excretory organs of the body, the kidneys, the liver, the lungs and the skin of the pregnant woman must be kept in perfect order.

(*b*) *Prophylaxis after the appearance of symptoms.* If the symptoms are few and mild, the strict observance of the ordinary rules of the hygiene of pregnancy will suffice. For severer cases he recommends:—

Milk diet, strict and absolute, from the start. Water, *ad libitum.*

Catharsis must be prompt, free and regular every day. Winckel's pill of aloes and colocynth, with or without calomel, before bedtime, and followed by a saline draught in the morning, is very efficient. Where constipation is severe, calomel or compound jalap powder (singly or combined) should be given at night, followed by a dose of one of the stronger sulphate waters, like Rubinat, in the morning. Excessive catharsis must be avoided.

Hot baths or packs daily.

Pilocarpine as a diaphoretic is contra-indicated.

Glonoin, in one or two minim doses, is one of the best diuretics, or rather heart stimulants, rest rather than stimulation of the kidney being indicated.

Fresh air, an abundance of fresh water, gentle exercise, calisthenics and *massage* when the patient is strong enough; if weak, *sleep* and *rest in bed.*

2. *The Curative Treatment.*

Three varieties of puerperal convulsions are recognized—(*a*) the malignant variety, which does not yield to treatment at all; (*b*) the benign variety, in which recovery takes place spontaneously; and (*c*) the variety of mean gravity, in which both course and cure are favourably influenced by careful and judicious treatment. The objects to be attained are:—

(*a*) *To control and abbreviate the duration of the seizure.*

Chloroform by inhalation is universally employed.

Tincture of veratrin viride hypodermically in doses of 10 to 20 minims

every half hour or hour until the pulse-rate has been reduced to 60 per minute. Convulsions will not occur if the pulse-rate is kept down by this means.

Morphine does not find favour with Zinke since it "increases the tendency to death during coma by its interference with the eliminative process" (Parvin).

Chloral hydrate is one of the most helpful remedies in the pre-eclamptic stage (to procure sleep), but when given to control convulsions it has been disappointing.

Normal saline solution is recommended in moderate quantity under the skin and copiously by the rectum.

Extract of thyroid and parathyroid glands—Their value awaits further confirmation.

The withdrawal of cerebro-spinal fluid by lumbar puncture for the relief of intra-cranial pressure, is a hazardous and doubtful procedure.

Oxygen inhalations are of value during and between the attacks.

(*b*) *To protect the patient against injury during the convulsions.*

The convulsive movements must not be restricted. The patient must be prevented from falling out of bed, the tongue must be protected, and the pharyngeal cavity must be kept free from accumulation of fluids.

(*c*) *Means to remove the supposed cause of the disease from the system.*

The drugs recommended above in "Prophylaxis when symptoms have appeared" are useful, though the patient must not be overwhelmed with drugs. Notwithstanding that interruption of gestation by induction of labour, artificial delivery, or accouchement forcé, has not been attended with the good results so ardently expected, emptying the uterus is the only logical mode of treatment in severe cases where a judicious trial of other means have failed. If evacuation of the uterus be decided upon, deep cervical incisions or vaginal hysterotomy should be followed by forceps or by version and extraction. Where the cervix is not completely effaced and the os is still closed, Cæsarean section is indicated. Digital, manual, balloon, and metallic dilatation should not be attempted unless the parts involved can be quickly opened up without injury. Shock, excessive hæmorrhage and prolonged operative interference must be avoided.

FRANK E. TAYLOR.

Choice of Methods for Dilating the Gravid Uterus.

DAVIS (EDWARD P.). *Jour. of the Amer. Med. Assoc.*, 1907, vol. xlviii,, No. 16, p. 1344.—In this paper the various methods of dilating the gravid uterus are considered from the point of view of the indications which call for dilatation. The first section of the paper is concerned with the toxæmia of pregnancy. Whenever possible, in these cases, the hand should be used to dilate the cervix; but if the os will not admit a finger the author recommends the use of metal dilators until one or two fingers can be introduced, followed by manual dilatation. Should the cervix prove unmanageable by the fingers, Bossi's dilator should be used under anæsthesia. In acute toxæmia with threatening eclampsia, the author has found elastic bags too slow in their action to be satisfactory, as the continued presence of these bags without anæsthesia tended to excite convulsions. In cases of

placenta prævia, the author considers that as a rule the action of a bag is too slow and "its liability to produce hæmorrhage too great to bring it into direct comparison with the hand," which he prefers as a means of dilatation. Cases of placenta prævia in which the cervix is hard enough to resist manual dilatation are so rare that multiple incisions of the cervix, vaginal Cæsarean section, or abdominal Cæsarean section should never be required. In cases of accidental hæmorrhage, vaginal or abdominal Cæsarean section is recommended. In the hands of a physician not competent to perform Cæsarean section, multiple incisions of the cervix followed by introduction of the hand, rupture of the membranes and dilatation as rapid as is consistent with the integrity of the mother's tissues are advised. When the patient is in good condition without excessive loss, the use of Bossi's dilator and the hand may prove sufficient.

C. Nepean Longridge.

Version or High Forceps.

Brown (W.). *Buffalo Med. Journ.* Vol. lxii., No. 9, p. 529.—Excluding Cæsarean section, the treatment of the fœtal head delayed above the pelvic brim may be roughly divided into that of two classes of cases. The first includes all cases where prompt delivery is necessitated by the condition of the mother, *eg.*, "toxæmia with profound sepsis, eclampsia threatened or present, and perhaps a concealed accidental hæmorrhage." In these conditions, as is well known, the uterine contractions are often infrequent and inefficient. In this class the indication is version. In the second class fall all cases of dystocia due to the large size of the fœtal head in relation to the pelvis. The operation is undertaken for the benefit of the child, and there is scarcely ever any need for hasty delivery. In this class the indication is high forceps. The author lays stress on the necessity of dilatation of the soft parts before attempting extraction, and such dilatation must be obtained manually or instrumentally if not already present. In the high forceps operation the axis-traction instrument is to be used, and if the head is lying transversely it should be applied to brow and mastoid. When the head has passed the brim the forceps should be re-applied to grip the sides of the head. J. A. W.

Remarks on the Indications for Hysterectomy in Acute Puerperal Septicæmia.

Cumston (C. G.). *Trans. of the Amer. Assoc. of Obstet. and Gynecol.*, 1905. Vol. xviii., p. 121.—The question of hysterectomy for acute puerperal septicæmia is as yet far from settled. In order that it may become a legitimate operation the uterus must be the seat of marked lesions and form a serious danger to the organism. Puerperal lesions pathologically fall into three groups, viz., (1) the uterus alone presents marked lesions: in these cases hysterectomy is distinctly indicated, especially if other lesions co-exist, *e.g.*, rupture of the uterus, irremovable adherent placenta, fibromata or carcinoma; (2) cases where the uterus presents infectious lesions, but where other lesions exist in the viscera, *e.g.*, spleen and lungs: here the advisability of the operation is extremely questionable and is held by many to be contra-indicated; (3) those cases where the uterus has only served as a way of entrance to the infection, and is free from any lesion: here

hysterectomy would be worthless. In answer to the question: What is the ordinary condition of the uterus found in generalized puerperal septicæmia? Cumston has collected a formidable array of evidence to show that uterine abscess and purulent infiltration are more frequent than is generally admitted and than clinical evidence would lead one to suppose, and that very frequently extra-uterine lesions also exist, such as pelvic cellulitis, purulent infiltration of the broad ligaments, suppurative salpingitis, pelvic peritonitis, etc., all of which may need surgical interference. In gangrene of the uterus the local lesions are absolutely characteristic. Beckmann has given an excellent description of the process. Cumston concludes that there are certain cases of puerperal septicæmia which might be saved by removal of the uterus, but up to the present there are no absolute clinical signs which will allow one to proceed with certainty. Taking all the symptoms carefully into consideration and combining this with a careful intra-uterine examination, may lead to an indication for surgical interference after all other therapeutic procedures have failed. Acute septicæmia, on account of its rapid evolution, can never be benefited by hysterectomy, but, on the other hand, in cases of secondary septicæmia with a slow evolution, hysterectomy is indicated. No useful indications can be drawn from a bacteriological examination of the lochia or blood, but a cytological examination of the blood furnishes excellent prognostic indications.

FRANK E. TAYLOR.

Antistreptococcic Serum in Puerperal Fever: Recovery.

SMITH (E. W.). *British Med. Journ.*, 1907. Vol. i., p. 495.—This is a brief note of a case in which marked benefit rapidly followed the injection of 10 c.c. of polyvalent antistreptococcic serum. On the following day a similar dose was injected and all the symptoms rapidly disappeared.

FRANK E. TAYLOR.

ECTOPIC GESTATION.

A Case of Long Standing Full Term Ectopic Pregnancy.

BOVÉE (J. WESLEY). *George Washington University Bulletin.* Vol. v., No. 3.—The subject of this communication was a patient, admitted to the Columbia Hospital, who for nine years had carried an ectopic fœtus within her abdomen. Three years after this pregnancy she was delivered of a full-term child after an easy labour. The operation for the removal of the ectopic fœtus is described. An interesting and exhaustive historical survey of retained ectopic fœtuses is given. The earliest authentic account of this condition is that of Albucasis, an Arabian physician living in Spain, who in the eleventh century described how he saw parts of a fœtus escaping through the abdominal wall of a woman. During the sixteenth century a fair number of cases is found. Discussing the length of time a fœtus may be retained, the author refers to Sappy, who reported a case of 56 years' duration. Further investigations brought to light records of

nine cases of over 50 years' duration; six between 40 and 50 years; ten between 30 and 40 years; besides others of shorter duration. Numerous other instances are recorded in reports of post mortem examinations, the duration being unknown. About 80 per cent. of retained fœtuses undergo putrefactive changes and are cast off, commonly through the abdominal wall or by the bowel. The remaining 20 per cent. remain in various states of preservation. The author is very doubtful whether a true lithopædion is ever produced by retention of an ectopic fœtus. A discussion on the situation of the gestation sacs and the right methods of treatment closes this interesting paper. ABERNETHY WILLETT.

Lithopædion Carried Twenty-six Years or more.

MOREHOUSE (W. H.) and GRISWOLD (E. H.). *Journ. of the American Medical Association*, January 19th, 1907.—A lady, aged 62, was married at the age of 20. Her first child was born in 1866, her fourth and last in 1871. In 1880 she missed a period, and for six months had symptoms comparable to those of ectopic pregnancy. After six years of restored health she had a severe attack of peritonitis lasting three months, from which she recovered. Menstruation ceased in 1894. In 1906 a moveable abdominal tumour was found to the right of the median line low down in the pelvis. The abdominal tumour was found on operation to be a lithopædion surrounded by and attached to omentum and intestine. There were no attachments to the uterus, ovaries or tubes. The specimen was a complete skeleton of a fœtus of five or six months. No mention is made of any lesion in the uterus, tubes or ovaries. C. NEPEAN LONGRIDGE.

The Termination and the Treatment of Extra-uterine Pregnancy. With a Report of 32 Cases Treated at the Cork County Hospital.

HEINECK (AMIÉ PAUL). *Surgery, Gynecology and Obstetrics*, February, 1907.—The author first discusses the various methods of termination of extra-uterine pregnancy, and then gives his views on treatment. If rupture has occurred, immediate operation is called for to control the hæmorrhage, as it is impossible to see through the abdominal wall to determine whether the hæmorrhage has ceased or continues. In the absence of urgent symptoms operation should not be long delayed, as, so long as the fœtus lives, the placenta increases daily in size, in vascularity, and in difficulty of removal, and every day adds to the danger of a secondary rupture. He is strongly in favour of the abdominal route, and recommends the vaginal route only when the gestation sac has been converted into a pelvic abscess. In some difficult cases both routes may have to be used. He does not use a median incision, but one on that side of the median line on which the sac lies. The Trendelenburg position is used, but the patient must not be suddenly placed in that position. When there is much blood lost saline transfusion should be used freely, but not until the bleeding points have been secured, and in such cases a careful examination must be made before the abdomen is closed, as the bleeding may commence again from the increased pressure after the transfusion. The unaffected tube and ovary should always be examined carefully, but unless they are diseased or there is a positive indication, such as a highly contracted pelvis, they should not be removed. In dealing with cases at full time, the operation

will not often be called for while the child is alive. If the child has quite recently died the author is not in favour of waiting a month or longer. He would operate at once. In rare cases the ovum can be removed as a whole, but, as a rule, the sac must first be evacuated and then removed if possible, but this often is impossible, so the sac must be sutured to the abdominal wall and packed daily until the placenta has been expelled and the sac cavity obliterated. Other methods have been employed. The sac has been evacuated, the cord cut close to the placenta and everything else left *in situ*, and the abdominal wall closed. This is a risky experiment, but it has been successful. In some cases the placenta and gestation sac have been removed along with the uterus and ovaries. Vineberg thinks that the mortality is increased sixfold by leaving the placenta *in situ*. In a difficult case he ligated the ovarian and uterine arteries on the free side, then cut the uterus across at the level of the os internum, then ligated the uterine artery of the involved side, and finished by removing the uterus and the extra-uterine mass. His patient recovered. The ideal operation is to remove the placenta and sac completely if the procedure be consistent with the safety of the mother. When packing is used the elimination of the placenta takes from 20 to 50 days. The author gives a tabular report of 32 cases. Thirty cases were treated by abdominal section, one by vaginal section, and one by combined abdominal and vaginal section. Two patients died of septic peritonitis, one of them being the case operated upon by the combined route. None of the patients had advanced beyond the very early months of pregnancy. ROBERT JARDINE.

The Histology of Pregnancy in a Rudimentary Lateral Horn.

HOFF. *Archiv für Gynäkol.* Bd. lxxx., Heft 2, p. 352.—Hoff records the case of a four months' cornual pregnancy which terminated in the rupture of the rudimentary lateral horn. The uterine cavity was represented by a tapering horn, like that found in uterus bicornis. The name rudimentary is given to any horn which is not sufficiently developed to allow of the development of a normal pregnancy. The rudimentary horn was attached to the uterus by a pedicle, and there was thus no communication with the uterine cavity. An external migration of the ovum or sperma or of the fecundated ovum must have taken place. The ovum grew intramurally; the muscular layer had been destroyed by the invasion of villi and chorionic cells owing to an absence of decidua. The rudimentary character of the horn is shown (1) by an insufficiency of muscular tissue, and its incapability of answering to the stimulus of pregnancy by hypertrophy; (2) by the insufficiency of the mucous membrane and its almost entire incapability of forming a decidua. Pregnancy in a rudimentary lateral horn terminates either in (1) rupture of the sac; (2) primary death of the ovum which is retained; (3) full term pregnancy and death of the fœtus after term. Rupture of the sac is brought about, the author says, by the faulty character of the mucous membrane and its inability to form decidual cells, thus failing to provide the natural barrier to chorionic invasion. This condition leads to a destructive proliferation of the chorion. The cells entering the muscle and vessels are Langhans cells. This is proved by the presence of bridges of cells between the villous layer and the clumps of cells in the tissues. The author illustrates his description by various diagrams showing the ruptured horn and uterus, and sections of the cornual wall. H. T. HICKS.

Angular Pregnancy and its Relation to Ectopic Gestation.

LEQUEUX (P.). *Revue de Gynécol. et de Chirur. Abdom.*, September-October, 1906.—Under the name Angular Pregnancy the author describes the pregnancy resulting from the implantation of the ovum in a uterine cornu, intermediate in position between an interstitial pregnancy and an intra-uterine pregnancy. He declares this to be not uncommon but seldom to cause symptoms which lead to its recognition. Vineberg ascribes its occurrence to metritis during development of the uterus. Bar assigns it to the attachment of the ovum in the neighbourhood of the tubal opening into the uterus, which entails a more rapid development of that uterine cornu and more marked modifications in its consistence. Braun and Puech support this explanation, and the latter has found the placental site in that position after labour in these cases. Piscacek and Velluet also explain it in this way. It can only be recognized during the first three months of pregnancy. During this time the gravid cornu can be differentiated from the rest of the uterus by palpation, and there is often surprisingly little softening of the cervix. Hegar's sign appears later than usual (generally during the fourth month), and an oblique furrow can be felt marking off the gravid cornu from the rest of the uterus. The condition can be confused with ectopic gestation, but only during the first three months of pregnancy. After that date the signs rapidly become those of a normal pregnancy. Occasionally, but not usually, pain is felt in the affected uterine cornu, which may radiate down the corresponding thigh, and may be so severe as to simulate exactly an ectopic gestation threatening rupture. A case of this kind is reported by Brindeau. Again, hæmorrhages occasionally occur apart from abortion. Abortion is uncommon, and, if it occurs, there is nothing distinctive about it. Another complication, though an extremely rare one, is rupture of the uterus, occurring in the same way as rupture of a gravid tube. Angular pregnancy is said to be a cause of retention of the placenta and of the formation of a placenta bordé. The condition has often led to laparotomy for a supposed tumour near the uterus. Bar says that the tumour formed by an ectopic gestation is always either fluctuating or hard, never soft, but that the tumour of an angular pregnancy is always soft and exhibits occasional contractions. Again, the latter tumour is never in Douglas's pouch, but is always unmistakably lateral throughout and very close to the uterus. The position of the round ligament, if that can be felt, is of course enough to distinguish it definitely from a tubal gestation. Under two circumstances the diagnosis of angular pregnancy is said to be impossible, viz., (1) when the uterus is retroverted and the gravid cornu lies in front; in this case the diagnosis can be cleared up by replacing the uterus under an anæsthetic, but if there are adhesions and the gravid cornu is on the side of the adhesions, diagnosis is impossible (Bar). (2) When the angular pregnancy approaches so nearly to an interstitial pregnancy as to be in diagnosis quite indistinguishable and in anatomical situation almost identical. The suggestion is thrown out that abortion in such cases has been described as tubo-uterine abortion of an interstitial pregnancy. Where angular pregnancy is certainly diagnosed, the author recommends that the case be watched; where the diagnosis between interstitial and angular pregnancy is uncertain, the surgeon must be prepared for operative interference.

G. F. DARWALL SMITH.

Rupture of a very early Extra-uterine Gestation.

Ridout (Scott). *Lancet*, 1907. Vol. i., p. 805.—The case recorded is one of a pregnancy in the isthmus of the Fallopian tube, which the writer estimates at not more than four weeks' growth at the time of rupture. There is no description of the affected tube, and the data are not sufficient to justify a definite opinion as to the age of the pregnancy.

J. S. F.

A Case of Abdominal Section for Ectopic Gestation.

Roberts (D. L.). *British Med. Journ.*, January 5th, 1907.—The case is one of ruptured tubal gestation, with the extrusion of a three months' fœtus into the folds of the broad ligament. There was no history of severe intra-abdominal hæmorrhage. The gestation sac was removed, and recovery ensued.

Frank E. Taylor.

REPORTS OF SOCIETIES.

OBSTETRICAL SOCIETY OF LONDON.

Meeting held May 1st, 1907, Dr. H. R. Spencer, *President, in the Chair.*

A short communication was read by Dr. C. R. Porter

On a Case of Intra-Peritoneal Rupture of the Bladder Occurring During Labour.

A primigravida, aged 32, who had never complained of previous bladder trouble of any kind, was seen 48 hours before labour had really commenced on account of vague pains referred chiefly to the sacral region, which were thought by the patient to be labour pains. There was then no undue distension of the bladder to be made out by abdominal examination. Urine had been passed that day. Two days later labour pains started in earnest, but medical aid was not summoned until 12 hours had elapsed. The nurse in attendance gave a history that labour had been progressing in the ordinary way for about 12 hours, when, during a pain, the patient suddenly cried out that "something had given way inside," and from that moment became very ill indeed. When seen the patient looked very ill, the pulse was very rapid, the tongue dry, and the abdomen was much distended and tympanitic. Ordinary labour pains were not to be distinguished from the acute general abdominal pain complained of, though some contractions of the uterus were still to be made out. The child was lying in the first vertex position, the os uteri fully dilated, and the head well down in the pelvis. Labour was not apparently obstructed except by the absence of efficient uterine contractions. It was thought that some grave intra-peritoneal catastrophe had complicated labour, and in view of the serious condition of the patient chloroform was at once administered and a full term well-nourished male child was easily delivered with forceps. After some post partum hæmorrhage the uterus contracted down well. The umbilical cord was nearly pulseless on delivery, and the child died in about an hour. The general abdominal pain ceased to be complained of after delivery. The general condition of the patient had not improved five hours afterwards, the pulse and respiration being still very rapid and the abdominal distension considerable. Twenty-four hours after delivery the patient had not passed urine, had vomited frequently, and was obviously worse. It was decided to risk her removal to the hospital, eight miles distant. On admission she was much collapsed. A catheter specimen yielded about 4 fl. oz. of almost pure blood. The patient was anæsthetized, and the abdomen opened in the middle line below the umbilicus. A considerable quantity of urinous fluid mixed with serum escaped from the general peritoneal cavity. The stomach was enormously distended with gas, which was evacuated by a small trocar thrust into the anterior wall of the stomach after extending the abdominal incision upwards. This made examination much easier, and a small vertical rent about $1\frac{1}{2}$ in. long was found in the upper and posterior aspect of the bladder to the right of the middle line. This was closed by Lembert

sutures and the abdomen sewn up with silkworm gut, the lower angle of the wound being drained with a large rubber tube. The patient was not very markedly worse for the operation, but died from shock about six hours later. No autopsy was allowed.

A paper was read by Mr. ALBAN DORAN

ON MALIGNANT VAGINAL POLYPUS SECONDARY TO AN ADRENAL TUMOUR OF THE KIDNEY.

which appears as an original article in this number of the JOURNAL.

Dr. BECKETT OVERY described a similar case in which a polypoid mass had been found attached to the anterior vaginal wall. This was removed, and a large tumour in the right side of the abdomen was discovered. Two months later the vaginal growth had recurred, and it was again removed. The patient died a month later. The post mortem examination showed that the abdominal tumour was primary and was a malignant adrenal tumour starting in an adrenal rest. There were numerous secondary deposits in the liver and lungs, sections of which showed more or less typical adrenal tissue.

Mr. DORAN replied.

SPECIMENS.

Mr. J. BLAND-SUTTON showed a *Uterus Four Years after Cæsarean Section* in which the sutures used to close the uterus at the time of the operation were still visible.

Dr. LEWERS showed two specimens (and sections under the microscope) of *Cancer of the Cervix* removed by operation, one 20 years ago, and one 11 years ago, the patients at the present time remaining free from recurrence.

Dr. MAY THORNE showed a *Uterus* removed by operation in which there was a villous malignant tumour as well as a fibroid undergoing sarcomatous change.

BRITISH GYNÆCOLOGICAL SOCIETY.

Meeting held April 11th, 1907, MR. W. D. SPANTON, *President, in the Chair.*

Mr. F. B. JESSETT showed a specimen of *Extra-uterine Pregnancy* occurring in a patient aged 30, who complained of a lump in the left side of her abdomen which had been getting larger for the past three or four months. She had never been pregnant, but her last menstrual period was five months previously. Two months ago, after exertion, she felt ill, and had to keep in bed, where she remained six weeks suffering from pain and vaginal hæmorrhage. The swelling continued to increase up to the time of her admission. On examination a hard irregular mass was found in the left iliac fossa extending to the pubes and above the umbilicus, which was painful, midway between that and the left anterior superior spine. Cœliotomy revealed a gestation sac between the layers of the broad ligament with extensive adhesions. The sac contained a dead fœtus of five or six months, which was readily removed with the attached placenta. Every attempt to remove the sac caused hæmorrhage, which was controlled by pressure and ligature. The sac was brought into the superficial wound and the cavity plugged. Convalescence was uninterrupted.

Mr. F. B. JESSETT also read notes of a CASE OF RUPTURED OVARIAN CYST followed by generalized peritonitis of a malignant nature with secondary

growths in the uterus and vaginal walls appearing some months later. The patient, aged 35, had been operated on fifteen months previously for ruptured ovarian cyst, and returned complaining of pain in the right iliac fossa and metrorrhagia. On examination the uterus was found to be retroverted and mobile. In the recto-vaginal septum a small hard swelling was found, which readily bled when touched. This mass was excised before removal of the uterus by the vagina. The growths in the ovary and uterus presented similar histological characters, and consisted of cystic formation and intra-cystic papillæ. Convalescence was satisfactory during observation.

Dr. Macnaughton-Jones then read a paper for Prof. Jacobs, of Brussels, entitled

Radical Cure of Prolapse of the Uterus.

This method was used only in severe cases and had been tried in 77 such, with ages varying from 43 to 71. Five of these showed a slight relapse consisting of cystocele with prolapse of the anterior vaginal wall. One death occurred, which was due to stomachic causes. The operation is called abdominal colpopexy, and consists of median cœliotomy followed by strong traction on the uterus in an upward direction, which is then carefully released from its attachments and hæmorrhage checked. The uterus is held then only by its attachment to the vagina. The section of the latter must be made low down in proportion as the prolapse is pronounced. The vaginal incisions are V-shaped anteriorly and posteriorly with widely-separated limbs above at the insertion of the vagina to the uterus. The margins of the incisions are then united by sutures and the knots turned into the vagina. The pelvic floor is then reconstructed by whipping together the cut surfaces of the broad ligaments on each side including the round ligament. The broad ligaments of opposite sides are then united above the newly-formed vaginal vault. To prevent any return of prolapse the round and utero-sacral ligaments on both sides are united to the vaginal stump, which is thus raised up in the middle of the pelvic cavity.

In the discussion which followed Sir William Smyly was surprised at the successful results, and thought that in cases where the pelvic diaphragm was destroyed the operation was deserving of trial. Cases ought to be operated on early.

Mr. Christopher Martin thought that this operation would fail in some cases, and was in favour of using pessaries, but where they failed would resort to removal of the uterus and vaginal mucosa, and then unite the pelvic fasciæ of the opposite sides in the middle line.

Dr. Macnaughton-Jones thought the important point consisted in uniting the round and utero-sacral ligament in the middle line.

Mr. Jessett considered the same result would be accomplished by removal of the uterus by the vagina rather than the abdominal route.

Dr. Ethel Vaughan thought a distinction should be drawn between prolapse in younger women and in those who had passed the climacteric.

Mr. Furneaux Jordan considered the operation would prove useful in supporting the vaginal vault, which caused a difficulty in most other methods of operation. The procedure was quite justifiable.

The President said that in those cases where prolapse occurred in elderly women with patulous vagina and where a strong wish was expressed to have something done, this operation might be attempted.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Meeting held at Manchester, Friday, April 19th, 1907, DR. E. O. CROFT, *President, in the Chair.*

Dr. LLOYD ROBERTS showed a specimen of *Malignant Ovarian Tumour*. It was removed from a widow aged 65 years, who had had nine children. The menopause occurred 20 years ago. She was admitted to St. Mary's Hospital, Manchester, November 26th, 1906, complaining of a gradual enlargement of the abdomen, noticed for eight months. There was no pain, and very little loss of flesh; considerable difficulty was experienced in micturition, due to long-standing prolapsus uteri. A tumour equal to the size of two fœtal heads and freely movable was felt in the abdomen. There was dulness on percussion in both flanks which altered with change of posture, and a fluid thrill could be obtained. On account of the enfeebled condition of the patient a preliminary paracentesis abdominis was performed on February 25th, 1907, and 7,600 c.c. of brown mucilaginous colloid material evacuated, containing albumen, round cells, and crystals of cholesterin. Laparotomy was performed on March 21st 1907. A large quantity of ovarian and ascitic fluid escaped and a semi-solid mass arising from the left ovary was removed. The tumour weighed 2 lb. 12 oz., and was of a multilocular character, the component cysts varying in size from that of a hazel nut to an orange. The contents were chiefly "putty-like" débris, with some opaque colloid material. Microscopically, the cysts are lined by columnar epithelium, in several cases several layers deep and breaking through the basement membrane into the stroma of the tumour.

Dr. W. BLAIR BELL exhibited a specimen of *Sarcoma of the Clitoris*, which was removed from a woman aged 56. The growth was removed by a barbed-arrow-head incision, skirting the upper and lateral margins of the urethra with the angle of the "fork" of the incision, and the included structures were widely removed down to the pubes and anterior layer of the triangular ligament. The wound was sutured and healed by first intention. The specimen consists of a large irregularly spherical mass, more or less necrosed on the surface (? due to the ligation employed), arising from the clitoris and spreading to the left labium minus, which is slightly involved. The section, under the microscope, shows the growth to be a large, spindle-celled sarcoma, with a somewhat unusual amount of intercellular substance.

Dr. ARTHUR J. WALLACE read notes of a case of REMOVAL OF DEGENERATING FIBRO-MYOMA OF THE UTERUS WITH AN UNUSUAL POST OPERATIVE COMPLICATION. The patient was a married woman aged 53, who had had two children. Continuous bleeding had been present for twelve years until shortly before admission to hospital. Ten years ago the abdomen began to enlarge, and there had been progressive increase in size until the present time, especially during the past three years. On admission the abdomen was enormously distended by a tumour which extended from the pubes to within five inches of the xiphoid cartilage and occupied the entire width of the abdomen. Its consistence varied from solid to semi-solid, and was in parts almost cystic. In addition, a considerable quantity of free fluid occupied the peritoneal cavity, and when the patient lay in the left lateral position this fluid flowed into and

distended a globular, umbilical hernial protrusion some five inches in diameter. The cervix lay high up in the pelvis; it was extremely soft, and the os admitted the finger tip. No lump or swelling could be detected in the pelvic cavity. Operation was performed on January 22nd, when the tumour proved to be, not a cystic fibroid, but a fibroid so œdematous as to mimic the latter. Yellow fluid poured out freely when the tumour was incised, but from no definite cavity. Removal of the tumour was carried out without difficulty, misgiving being felt only when dealing with the colon, which was so closely attached to the tumour itself that damage to its vascular and nervous supplies seemed inevitable. Apparently it came away intact. The left kidney was fully exposed when the tumour had been lifted away. The extensive raw surfaces in the pelvis and posterior abdominal wall were drained with gauze led externally *per vaginam*. The weight of the tumour with uterus and appendages was 23½ lbs. On the day following the operation the usual dose of calomel (gr. iii.) and a seidlitz powder were given, followed, in default of any action, by a castor oil enema. The latter also failed to act, but there was some vomiting of dark brown fluid. A second dose of calomel was given next morning, but it was immediately rejected, as was also a seidlitz powder given some hours later. Forty hours after operation the bowels acted, and again three hours later. The remainder of the day was spent by the patient on the bedpan, there being a continuous, slimy watery discharge per rectum, with scarcely any fæcal or other characteristic odour. The following two days were passed in much the same state of discomfort. On the fifth day there were eight distinct evacuations, but in the intervals between these there was also a steady ooze of dirty slimy stuff from the anus. On the sixth day the patient again lay mostly on the bedpan, but on the following five days the evacuations became distinct, relapsing again into a steady flow on the 12th. Between the evacuations there persisted the steady ooze of watery mucus. On the 13th, 14th and 15th days the evacuations varied from five to seven, and gradually began to assume a more fæcal type, and from the 16th day onwards there was no return of the diarrhœa. The continuous loss enfeebled the patient greatly: the skin of the buttocks and adjacent parts became excoriated and bedsores developed over the sacrum. Still she never lost heart, even when at one time she seemed to be sinking. Once the diarrhœa had stopped she picked up rapidly, and went on well until March 1st (nearly six weeks after operation), when the temperature rose to 104·2°, and during the week following it was rarely below 100°. Nevertheless, during this period the patient felt and looked well, took her food well, and actually became plumper. No cause for the rise of temperature could be discovered. All the wounds due to operative interference had healed by first intention; the bedsores had almost healed and there was no diarrhœa. Although the temperature was still very variable when March 15th had arrived the general condition had continued to improve, and the patient was allowed to go home. She is very well at the present time, although the temperature remains, on the whole, a little above the normal level.

This was not an attack of ordinary diarrhœa or dysentery. Only occasionally were the evacuations streaked with blood, and as a rule they consisted of greyish, slimy, watery fluid, without odour at first, but very offensive after the first few days. The condition resisted all treatment, both local and general. Dieting did not influence it any more than astringents, sedatives or internal antiseptics, and the local application of

astringents introduced high into the bowel was also ineffective. The only drug that seemed to control the diarrhœa was the liq. ferri pernitratis.

Dr. DONALD suggested that possibly in a debilitated patient the administration of calomel might produce the symptom described by Dr. Wallace.

Mr. CUFF referred to thrombosis of tributaries of the mesenteric veins as a cause of the watery secretion from the bowel. He instanced a case of hyperpyrexia in a boy in whom ulceration of the bowels was produced by a foreign body, viz., a halfpenny. He did not think the symptoms were consistent with mercurial poisoning.

The PRESIDENT asked if there was any interference with the renal functions.

Dr. ARNOLD W. W. LEA read notes illustrating BILATERAL AXIAL ROTATION OF OVARIAN CYSTS DURING PREGNANCY. The occurrence of pregnancy has a decided influence in promoting axial rotation of ovarian tumours, and it is found as a complication in at least 10 per cent. of cases of ovariotomy during pregnancy. Acute bilateral rotation of ovarian tumours during pregnancy must, however, be rare, and no instance in which this has been observed has been recorded.

Mrs. A., multipara, æt. 27, was admitted into St. Mary's Hospital, Manchester, on March 9th of this year She had always enjoyed good health; menstruation was regular, lasting five days and unaccompanied by pain. The last period occurred on December 6th, 1906, and she considered herself to be pregnant three months. On the evening of March 6th she was suddenly seized with intense abdominal pain and vomiting. Her medical attendant discovered a tense swelling occupying the right side of the abdomen with diffuse tenderness. The temperature rose to 100·4°, but the pulse did not exceed 100; the pain continued to be very severe, and the patient was transferred to hospital. On admission the pulse and temperature were normal, but the patient looked ill, and complained of constant abdominal pain, especially in the left iliac region. The abdomen was much enlarged. To the right side a tense cystic swelling reached above the umbilicus and filled the hypochondrium, being very painful to the touch. In the left iliac region a firm, rounded tumour was felt, which was extremely tender and was continued into the pelvis. Bimanual examination revealed the uterus in the middle line extending two inches above the pubes and enlarged to the size of a three months' gestation. It was clearly separable from the abdominal tumours. A diagnosis of bilateral ovarian cyst with probable torsion was made. Abdominal section was performed on March 11th. The peritoneal cavity contained a considerable amount of sanguineous fluid. The pregnant uterus was at once seen in its normal position. The large tumour on the right side was intensely congested, and the pedicle was twisted twice or thrice from left to right. The cyst was punctured, two and a half pints of grumous fluid being evacuated. The tumour on the left side was almost black from hæmorrhagic extravasation, and had ruptured. The pedicle was narrow, and had undergone acute rotation from left to right in the same direction as the tumour of the opposite side. Both tumours were removed, and the patient made an uninterrupted recovery, without any sign of uterine contraction until the evening of March 26th, fifteen days after operation. Uterine contraction then commenced, and miscarriage occurred spontaneously. The fœtus, apparently of 3½ months' development, had evidently been dead for some days.

Pathological anatomy. Both tumours were dermoid cysts. A portion

of the right ovary close to the ovarian ligament was apparently healthy, and contained Graäfian follicles. The corpus luteum could not be discovered. Bilateral ovariotomy during pregnancy had been frequently carried out; thus up to the end of 1903 McKerron was able to collect from various sources 50 cases. It is remarkable that in no fewer than 40 of them pregnancy went on to full term, and a living child was born. Only two cases died as a result of the operation. It would seem therefore that the risk of double ovariotomy during pregnancy is very slight, and that in 80 per cent. of cases if no complication exists at the time of operation the pregnancy is not interrupted. Dermoid cysts appear to be extremely liable to undergo changes during pregnancy. They are usually of moderate size with a relatively long pedicle. The enlarging uterus often lifts them out of the pelvis, and any slight cause may then produce rotation. It is noteworthy that in 30 per cent. of the cases of bilateral ovariotomy during pregnancy the tumours have been dermoids.

Dr. T. B. Grimsdale read notes of a case of Tuberculous Disease of the Uterus and Appendages Causing Primary Amenorrhœa. The patient was a young woman, aged 29, who had never menstruated, but complained of pain in the back which lasted for two days every month. Her general health was good. There was no cough, and examination of the chest revealed no abnormal signs in the lungs. In the right groin there was a healed scar, suggesting old suppurating glands, and on the inner side of the right thigh a depressed cicatrix, as of a long-standing necrosis of the femur. There were in addition several healed scars over the right tibia. The patient could give no account of these scars. She was well-developed, and apparently a strong, healthy girl. Abdominal examination revealed nothing abnormal. *Per vaginam* the uterus was found to be somewhat enlarged and mobile. The sound could only be passed $\frac{3}{4}$ in. To the left of the uterus and posteriorly there was a definite elongated swelling. A diagnosis of malformation of the uterus with possibly some retention of blood was made. Abdominal section was performed, and the removal of the uterus and both appendages carried out. The vermiform appendix was adherent to the right Fallopian tube, and also to the upper part of the rectum into which it had opened. Both tubes were enlarged and distended with thick pus. The uterus contained caseous pus within its cavity, and disseminated in foci throughout its walls.

EDINBURGH OBSTETRICAL SOCIETY.

Meeting held Wednesday, May 8th, 1907, J. W. Ballantyne, M.D., F.R.C.P.E., *President, in the Chair.*

Prof. Jardine communicated a case of Status Epilepticus complicating Pregnancy. The patient was 27 years of age, and was at full term in her third pregnancy when the fits commenced. Her previous health had been good. She had never previously suffered from fits, and had had no miscarriages. The course of the pregnancy had been normal; there had been no œdema of any part of the body, and headache had occurred for the first time on the evening before admission to hospital. On admission she was found to be unconscious, and it was stated that she had had twelve fits in the course of a few hours. There was no albumen in the urine. Delivery of a live child was accomplished by version shortly after admission, but this had practically no influence on the convulsions. The patient died on the third day, 88 hours from the onset of the illness,

having during this period had 774 fits. Latterly the urine contained a trace of albumen. The fits were not of a very severe character; the right side of the body was more affected than the left; the tonic and clonic stages were about equal; there was no cry, and the duration of each fit varied from ½—2 minutes. On admission the patient was bled, and then transfused with a solution of sodium chloride and potassium acetate. Chloroform was administered to control the fits. About one fl. oz. of slightly turbid cerebro-spinal fluid was removed by lumbar puncture. It did not escape under tension. Stovaine was then introduced by the cannula, and produced paralysis of the legs and diminution of the movements of the arms, but a most alarming collapse ensued almost immediately. At the post mortem examination the cortical vessels of the brain were found to be markedly congested, and the naked-eye appearance of the kidneys suggested a parenchymatous nephritis. The infant lived for three days. Its urine contained albumen, and it suffered from fits, during which it became very rigid and cyanosed.

Dr. Jardine discussed the relationship of epilepsy and pregnancy, quoting statistics by Aldren Turner on the subject. In most cases the condition appeared to be aggravated, but in a few the opposite had been noted. The differential diagnosis of epilepsy in pregnancy from eclampsia was extremely difficult. Emphasis was laid on a previous history of fits or a neuropathic heredity as favouring a diagnosis of epilepsy. If the urine contained no albumen, and if there was no marked diminution of the quantity of urine secreted, the fits, in Dr. Jardine's opinion, were not eclamptic in nature.

Drs. Ritchie, Haultain, Haig Ferguson, Fordyce and Porter and the President took part in the discussion of the paper.

Dr. Malcolm Campbell read notes of a case of Bilateral Ovarian Dermoid Tumours complicating Pregnancy. The patient was a multipara, aged 32 years, who gave a history of six months' pelvic pain and discomfort, and three months of amenorrhœa. The dermoid tumours were removed, and six months later the patient was delivered of a full-time healthy fœtus, the removal of the ovaries having had no visible effect on the course of the pregnancy.

Specimens.

Dr. Haig Ferguson showed (1) *Uterus with Adeno-carcinoma of the Body*, removed by Vaginal Hysterectomy; (2) *The Right Fallopian Tube containing an Extra-uterine Gestation*, from a patient who four years ago had had her left tube and right ovary removed by operation; (3) *Double Pyosalpinx of Gonococcal Origin*.

Dr. Haultain showed (1) *Large Fibroid of the Round Ligament*; (2) *A Micro-photograph showing Tuberculosis of the Endometrium*. The patient was curetted on account of sterility, and the nature of the condition was not suspected prior to the microscopic examination of the material removed.

Dr. Fordyce showed (1) three specimens of *Carcinoma of the Uterus, One Corporeal and Two Cervical*, removed by vaginal hysterectomy; (2) *Uterus showing Combined Fibroid and Carcinoma*; (3) *Interstitial Fibroid showing Necrobiosis*; (4) *Cervical Fibroid Tumour*; (5) *Multiple Fibroids of Uterus*, removed for pressure symptoms; (6) *Multiple Fibroids*, removed for post climacteric hæmorrhage.

ROYAL ACADEMY OF MEDICINE IN IRELAND
SECTION OF OBSTETRICS.

Meeting held Friday, April 12th, 1907, SIR A. V. MACAN *in the Chair.*

Dr. ASHE exhibited a *Volsella,* which he had had made in order to get over the tendency of the bullet forceps to slip out of the cervix, and the discomfort attending the holding of it for any considerable period. The chief features of the volsella were that the points interlocked instead of meeting outside, while they were flatter on the under surface than the ordinary bullet forceps so as to offer a greater resistance and not pull through the tissues. The handles were so shaped that no matter how they were held they were a great deal more comfortable. There was no difference as to the cost of production.

The CHAIRMAN, Dr. HASTINGS TWEEDY and Dr. SPENCER SHEILL complimented Dr. Ashe on his exhibit, and the latter replied.

Dr. SPENCER SHEILL exhibited a *Chart* showing diagrammatically the dates and occurrences during the last three years in connection with an eclamptic patient, a report of which appears in this number of the JOURNAL.

The CHAIRMAN asked if the urine was examined between the pregnancies, and whether she had a very small quantity of urea.

Dr. SHEILL said the kidney was acting quite normally between the pregnancies, and was quite capable of carrying on its work. The urine was examined at very frequent intervals in order to be quite sure on that point.

Dr. HASTINGS TWEEDY said the result had absolutely justified Dr. Sheill's treatment, but he had never heard of a woman being deliberately sterilized when no symptoms were present, and when there was no suggestion that she would ever become pregnant again. He did not suggest that anything but the right thing was done, but it was a very bold procedure, and if he had to contemplate such an action he would be very glad to be able to refer to the record of a successful result in a case of a similar kind.

Dr. JELLETT could not agree with Dr. Tweedy as to the particular boldness or rarity of removing the tubes for renal disease. It was on all fours with the very old treatment of osteomalacia. One could not wait until pregnancy in order to resect the tubes. He could not look on the patient as being a healthy woman. Her kidney might be acting at one time, but it was amply proved that it would not act under the adverse circumstance of pregnancy.

Dr. KIRKPATRICK instanced a case of a girl of twenty who became pregnant last year and had eclampsia at the time. She died with all the symptoms of failure of the kidneys. At the post mortem they found she had old and chronic tuberculous disease of one kidney, which had completely destroyed its function; the other kidney was amyloid. She recovered from the eclampsia, but died some months afterwards from failure of the single kidney.

Dr. HORNE said that, considering the age of the patient, twenty-eight, and her apparent fertility, he thought Dr. Sheill was perfectly justified in his action. If he had allowed her to become pregnant again he would probably have had to repeat the former operation with less favourable results. In his experience albumen was always found persisting in the urine six and eight months after delivery where eclampsia had occurred.

The CHAIRMAN agreed with Dr. Horne, and said that the chart showed very graphically the condition of the patient.

Dr. SHEILL, replying to a question by Dr. Neil, said the patient was

not on an absolute non-nitrogenous diet except when she was showing kidney insufficiency. Between pregnancies she was on a mixed diet, but was warned against taking the usual amount of meat.

Dr. Spencer Sheill read a paper on The Method of Bier in Gynæcology. The paper dealt with Bier's treatment of disease (by hyperæmia artificially produced) as applied *locally* in gynæcology, and some actual experiences with it in a variety of gynæcological ailments were related by the author. The tendency nowadays of imitating Nature's methods of combating disease was discussed. Dr. Sheill dismissed the "arterial" hyperæmia as produced by hot air, and the "venous" form by "constriction," because he had had no experience of the former, and the latter he considered inapplicable to gynæcology. The "suction" form, creating mixed arterial and venous hyperæmia, was the kind he used, and he showed a simple form of appartus which had been successfully used in a number of cases. The author said that in order to be beneficial the "suction" must be intermittent, and must not be so strong as to cause pain. Three minute application and one minute interval for half hour sittings daily or weekly as the case might be, were recommended. He also spoke of the value of the intermittent action, "massaging" the uterus being valuable in cases of adhesions and relaxed pelvic ligaments. Dr. Sheill had used the treatment in two cases of amenorrhœa without obvious cause, the results were negative in so far as the menses were concerned, although in one case other pelvic symptoms were relieved. A case of endometritis was very favourably influenced. In two cases of old pelvic exudate and adhesions the result was especially gratifying. The author suggested that in gonorrhœa the suction treatment would be valuable to prevent the upward spread of the infection, also for the safe and easy removal of tenacious mucus from the cervix of nulliparæ desirous of becoming pregnant. Klapp, an assistant to Bier, was quoted as recommending "suction" in cases of suppurative mastitis. Dr. Sheill described a case in his own experience—since writing the paper—the result was excellent. In conclusion, the writer of the paper expressed a hope that others in this country would give the treatment a trial and that those who have used it would compare results obtained, because he believed it to be a distinct advance in gynæcological methods.

The Chairman said the method appeared to improve the defensive force of the tissues against invasion. Personally he did not think that the mere drawing of a little blood into the cervix was likely to have much effect.

Dr. Ashe and Dr. Tweedy also spoke, and Dr. Sheill replied.

Dr. Hastings Tweedy read the Report of the Rotunda Hospital for the year 1905–6.

On the proposal of Dr. Neil, seconded by Dr. Horne, discussion on the paper was postponed till the next meeting of the Section.

Dr. A. J. Horne exhibited for Dr. Duke a new *Uterine Dilator*. Dr. Duke said that anyone who has performed the operation of dilatation must have noticed the contraction of the cervix uteri on the curette taking place during the proceeding. The cervical wall may also require scraping, and owing to the contraction spoken of it becomes a difficult matter, if not impossible. The cannulæ shown were designed to be introduced after dilatation according to the amount of room required, the curetting being carried on through the cannula, which is gradually withdrawn, thus effectually preventing the contraction of the cervix on the curette.

Dr. Tweedy expressed the Section's appreciation of Dr. Duke's kindness in giving them the opportunity of seeing his interesting appliance.

ROBERT BARNES, M.D.

Obituary.

ROBERT BARNES, M.D.

Dr. Robert Barnes was born at Norwich in September, 1817. His father was Philip Barnes, who founded the Royal Botanical Gardens in Regent's Park. Dr. Barnes's early schooldays were spent at Bruges, where he learned to speak French fluently. He was apprenticed to Mr. Griffin, surgeon, of Norwich. One of his boyhood's friends was the late Dr. George Roper. He studied medicine at University College, London, and at St. George's Hospital. He learnt chemistry at the Royal Institution, where he took the first prize. Having become a member of the Royal College of Surgeons, he went to Paris in 1842, and there remained, supporting himself by his pen, living on £1 a week, and studying medicine, surgery and obstetrics (the latter under Paul Dubois) for a year. He became M.D. of London in 1848. He started in general practice at Notting Hill. He was determined to be a teacher; and after some disappointments and much hard work he was appointed Lecturer, first on Forensic Medicine and then on Obstetrics, at Dermott's School (one of the private medical schools of London). In 1850 he was appointed Physician to the Western General Dispensary, Marylebone, and removed from Notting Hill to Gloucester Terrace, Hyde Park. He obtained an appointment on the staff of the Dreadnought hospital ship. In 1857 he joined the Metropolitan Free Hospital. These were, however, only temporary steps in his life. The opportunity which determined his life's chief work came in April, 1859, when he was appointed Assistant Obstetric Physician to the London Hospital, and went to live in Devonshire Square and then in Finsbury Square. He became full Physician in 1863. Dr. F. H. Ramsbotham was Lecturer on Midwifery in the London Hospital Medical School during Barnes's connection with it, and at that time the slender emoluments associated with the teaching of midwifery all went to the lecturer. Moreover, the London Hospital was then a very small school. In 1865 the post of Obstetric Physician to St. Thomas's Hospital and Lecturer in Midwifery, became vacant by the death of Dr. Waller. The Assistant Obstetric Physician, Dr. Gervis, was then a very junior man, had held office but a short

time, and had therefore but little clinical experience. The St. Thomas's Hospital Medical School was then a larger one than the London, and there was some direct remuneration attaching to the senior post. These were among the considerations which induced Barnes to accept it, for consulting practice was slow in coming to him. About this time he removed to Grosvenor Street. He held office at St. Thomas's till 1875. He felt strongly that those who were responsible for the treatment of diseases of women ought to be allowed fully to carry out such treatment, and therefore to be untrammelled in their judgment; in other words, that obstetric physicians ought to be allowed to operate. At St. Thomas's liberty in operating was denied to the obstetric physician; and therefore Barnes transferred his services to St. George's Hospital, where he was given a free hand in this respect. He became Consulting Obstetric Physician in 1885. Dr. Barnes became a member of the Royal College of Physicians in 1853, and the esteem in which he was held is indicated by the fact that he was elected a Fellow as early as 1859, and that in 1877–78 he served as Censor. Only three Fellows senior to him remain. He died at Eastbourne (where he had been for some years living in retirement) on the 12th of May, in his 90th year.

Dr. Barnes first became widely known to the profession by the publication in 1869 of his "Lectures on Obstetric Operations." In this great work the author described not only operations, but the conditions which call for operations. If for nothing else, this book would have a permanent value from the fulness with which the history and literature of the subject are given. But it is much more than a bibliographical compilation. Barnes brought original thought to bear on each subject, and expressed himself in a clear, vigorous, and yet graceful, style. The book attracted, nay charmed, its readers at once. It was translated into nearly every European language, and brought Barnes a world-wide reputation. The weakness of this brilliant book was that the author sometimes theorized in his arm-chair without testing his thoughts by actual experiment. He described a method of delivery by cutting the fœtal head into slices with an écraseur, which neither he nor anybody else had ever done in an actual case of obstructed delivery. Barnes wrote easily and sometimes hastily, as when he said: "Surely no one can doubt that the traction power, and therefore the compressive power, acquired by pulling on the legs and trunks, is greater than can be exerted by the strongest forceps." Matthews Duncan had, before this was written, found by experiment that a traction power of about 120 lb. would

sever the neck of any child, but the force that can be applied by a properly applied forceps is unlimited. But notwithstanding occasional slips like these, the work as a whole was a great one.

In 1874 appeared Barnes's greater, though perhaps less popular, work, that on "Diseases of Women." The subject of this work was more extensive and less simple than that of "Obstetric Operations." This book, no less than the former one, showed the author's wide acquaintance with the work of those who had preceded him in the field. There were books by other authors of which the same thing could be said. But Barnes did more than quote books. He ransacked the shelves of museums, and interrogated the specimens. Where he found a specimen that answered a question he drew it (for he was a good draughtsman) and put the drawing in his book. At the time the book was written operative gynæcology was in its infancy. Barnes himself had not begun to operate. The practice of gynæcology then consisted too much in the use of the speculum and caustic and of pessaries; and this feature was reflected in Barnes's book. But, whilst recognizing this, the book must be acknowledged to be a great one; it involved enormous labour, and was richer in pathological and clinical information than any book on the subject that had previously appeared.

On these two books his fame rests, and it rests on a firm and solid foundation.

Dr. Barnes was a facile and prolific writer. He delivered the Lettsomian Lectures on Placenta Prævia, the Lumleian Lectures on the Convulsive Diseases of Women, and many other papers, lectures and addresses. He was for many years on the staff of the *Lancet*. He was always interesting, for his style was clear and vigorous, and he theorized easily and ingeniously. His best work is incorporated in the two great works mentioned above. He published, in conjunction with his son, a work on "Obstetric Medicine and Surgery," but this, mainly from deficient proof correcting, was not a success.

Robert Barnes was one of the founders of the Obstetrical Society of London, and was its fourth President. For many years his masterful individuality dominated the Council and the debates of that Society. He took the leading part in the proceedings which purged the Society of Mr. Baker Brown. In the early eighties influences arose which weakened the sway of Barnes at the Council. He therefore in 1885 founded the British Gynæcological Society, of which he became the Honorary President, and practically ceased to attend the meetings of the Obstetrical Society of London.

At the time when the Royal College of Surgeons gave a diploma

of "Licentiate in Midwifery" to those who could pass an examination in midwifery, Barnes, Arthur Farre and Priestley were the Examiners. Some women, not qualified to practise, proposed to present themselves for this examination, and the College was willing if they passed it to let them have the diploma, thus creating an order of persons qualified to practise midwifery alone. As soon as this came to Barnes's knowledge, he at once resigned his examinership, and his colleagues, Arthur Farre and Priestley, when they heard what he had done, followed his example. The President of the Obstetrical Society, to whom fell the melancholy duty of delivering an obituary notice of Arthur Farre, in dealing with the above-mentioned episode, only stated that Arthur Farre had resigned, and did not say that his resignation followed that of Dr. Barnes. This omission so wounded Dr. Barnes that a few years before his death he resigned his Fellowship of the Obstetrical Society, because the Council of the Society could not discover a way of rectifying what Barnes chose to consider a mis-statement, although it was perfectly accurate so far as it went.

Barnes was a big man, physically and mentally. He had a strong will, great power of work, large knowledge, independent judgment, fluent and vigorous speech. He had a great belief in himself. He was frank and outspoken, indeed a little brusque in manner. He was not remarkable for manual dexterity, and for these reasons his practice was never so large as from his great reputation might have been supposed. He was a man of much public spirit, and this led him to take a prominent part in many matters of controversy not specially relating to his own line of practice, such as hospital administration, vivisection and the constitution of the University of London. For several years he was Medical Officer of Health for Shoreditch, and during this time he threw himself with zeal into the study of sanitation. He was an honour to his profession, and his profession honoured him.

He was twice married, and children of each marriage survive him.

G. E. H.

REVIEWS OF RECENT BOOKS.

THE PRACTICE OF OBSTETRICS, in original contributions by American Authors. Edited by Reuben A. Peterson, A.B., M.D., Professor of Obstetrics in the University of Michigan; Obstetrician and Gynecologist-in-Chief to the University of Michigan Hospital. Pp. 1087; 523 engravings and 30 plates. London and Glasgow: Henry Kimpton, 1907. Price 31s. 6d. net.

This important addition to the already long list of American treatises on obstetrics deserves careful examination; the contributors are men all well and honourably known in their own country, and the names of certain among them will also be familiar to readers of this JOURNAL. Dr. Peterson appears to have limited himself to the general duties of consulting editor, for he is not responsible for any of the text, and he says in his preface that "Each contributor has been free to develop his subject in accordance with his own experience." These duties are, however, of a sufficiently onerous nature, as all will agree who have had experience of works written in collaboration. Not all the contributors are obstetricians, for the section dealing with the Development of the Ovum has been written by Dr. Carl Huber, Professor of Embryology in the University of Michigan, while the chapters dealing with the Pathology of the Placenta, Membranes and Fœtus have been entrusted to Dr. Scott Warthin, Professor of Pathology in the same University. Let us examine first of all the parts written by these two authors.

The chapters dealing with Development run for the most part upon conventional lines; full credit is given to the work of Nagel and Waldeyer upon the histology of the process of ovulation, and to Peters and Graf Spee for their authoritative contributions to the early stages of human development. Having traced the development of the fœtal membranes, the author turns aside to discuss the development of the uro-genital system somewhat fully; he then passes to consider the deciduæ and the placenta together. Dr. Huber appears to be still in doubt upon the histogenesis of the syncytial layer of the chorionic epithelium. It is true that Pfannenstiel has recently attempted to show that it is derived from the endothelial and sub-endothelial tissues of the maternal blood sinuses, but the weight of evidence derived from studies in uterine, tubal and ovarian gestation may surely be now accepted as proving conclusively the fœtal origin of this much discussed tissue. The description of the placenta is meagre, but is illustrated with Minot's well-known section, which to some extent atones for the paucity of the text. There is no reference in any part of the volume to the functions of the placenta—a very curious omission. On

the whole, we may say that the section on Development is adequate, but does not possess any special distinction.

On the other hand, Dr. Scott Warthin's account of the pathological conditions of the Placenta is the best general review of the subject which we have ever read. The author has made an exhaustive personal study of placental syphilis and placental tuberculosis, and what he says about them deserves very careful study. With regard to syphilis, he accepts with some modification Fränkel's view that a local productive form of inflammation affecting the stroma of the villi occurs in conceptional syphilis; but Dr. Warthin admits that only when this change is universally diffused over the whole placenta is it pathognomonic of syphilis; a similar change affecting localized areas may be met with apart from syphilis. He rejects Fränkel's view that in maternal syphilis the decidua is affected, indeed he denies that any syphilitic lesions occur in the decidua at all. With regard to tuberculosis, Dr. Warthin's observations constitute a distinct advance upon our previous knowledge; he traces the formation of agglutination thrombi containing tubercle bacilli in the maternal sinuses and the intervillous spaces, and the formation from them of caseous nodules involving neighbouring villi or decidual tissues. The figures (micro-photos) illustrating these changes are insufficiently described, and the general reader will probably find some difficulty in picking up the histological details; this form of illustration is seldom suitable for teaching purposes.

Dr. Warthin's account of the hæmatoma-mole will not meet with general acceptance; he desires to call it the "aneurysm-mole," believing that the blood collects in dilated intervillous spaces corresponding to the tops of the folds into which the fœtal membranes are thrown. The author does not appear to have heard of the work of Couvelaire upon the early stages of formation of tubal moles, and of the importance, in this connection, of the chorio-decidual space. He also states that after the death of the fœtus the chorionic villi proliferate and grow into the "decidual sinuses and veins" blocking them, and thus causing the intervillous spaces to dilate. We believe that no evidence whatever exists of growth or multiplication of villi after the death of the fœtus, and we have no doubt that the view that these moles are caused by sub-chorionic hæmorrhage, not by aneurysmal dilatation of the intervillous spaces, is the correct one.

The author has much that is interesting to say of inflammation of the decidua. He classes the vesicular mole as a neoplasm, and styles it "chorion-epithelioma benignum"; in his description, however, he usually employs the objectionable term *hydatid* mole. Symptoms, diagnosis and treatment receive scant consideration, and together take up but a single page of the text.

Three chapters are devoted to the Pathology of the Fœtus, and this subject receives much fuller consideration than is usual in an obstetric text-book. A full and beautifully illustrated account of fœtal monstrosities from the pen of Dr. Foster Lewis is included in this section.

We may certainly say that Dr. Warthin's valuable contributions to placental syphilis and tuberculosis will be very welcome to practical obstetricians, and the Editor of this work was no doubt justified in seeking the collaboration of this distinguished pathologist. But it is highly undesirable that obstetricians should relegate the study of the

pathology of their subject unreservedly to the general pathologist, or that editors should rely entirely upon him for the pathological sections of such works as this. Only when the findings of the histologist are controlled by clinical observation do they yield the best results.

A short and eminently practical section upon the Physiology of Pregnancy is contributed by Dr. Walter P. Manton. It is profusely illustrated, and some of the photographs of the breast changes in pregnancy are particularly good. We notice the statement that "in occiput posterior positions the point of maximum intensity (of the fœtal heart sounds) is some inches downwards and to the right or left" (of the umbilicus). A photograph is given showing the maximum intensity point in a third vertex position very near the mid-line and about half-way between the pubes and the umbilicus. It is true that the heart sounds may be heard at this spot in a third position, when there is sufficient extension of the spine to throw the chest wall forwards against the abdominal parieties. But as a rule the sounds are heard through the back of the anterior shoulder of the fœtus, *i.e.*, outside the mammary line. Mention is not made of this well-recognized fact, although a diagram of Bumm's is given in which it is represented, and the reader will find some difficulty in reconciling this figure with the author's original photograph, already mentioned. In discussing the mechanism of labour in another place, Dr. Newman Dorland, agreeing with Bumm, asserts that in the third vertex position the maximum intensity point lies in the right flank just below the median transverse line of the body. Brief reference is made to a physical sign of pregnancy which we do not remember to have read of previously; it is called "Johnson's sign," and consists of "alternate softening and hardening of the cervix, appreciable to the touch," and is recognizable as early as the third or fourth week. Dr. Manton only devotes five lines to his description of this sign; we wish he could have given us a little more information about it for it is certainly a novelty in this country.

The Physiology of Labour is discussed by Dr. Newman Dorland. The English reader will in this section encounter many points with which he is unfamiliar. Thus the word "fetometry" occurs, and means, we are told, the "scientific measurement" of the fœtus; it only includes, however, the conventional measurements of the skull and the trunk. The word "position" is used in a double sense; in one sense it replaces the usual term "lie," in the other it has the same significance as when used by English obstetric writers. In speaking of the relative frequency of the position of the vertex, the author rightly attributes the predominant frequency of engagement in the right oblique diameter to the greater length of this diameter in the living body. But the comparative infrequency of the third as compared with the first position he attributes (following Cameron) to the site of the placenta; as this organ is usually attached to the posterior uterine wall the rounded posterior aspect of the pelvic extremity of the fœtus will lie more easily against the anterior than the posterior uterine wall. This explanation entirely overlooks the point emphasized in this country by the writings of Herman, that in the third position the convexity of the fœtal back is badly accommodated against the posterior uterine wall which is moulded by the convexity of the lower dorsal and lumbar vertebræ. Accommodation will therefore tend to produce an anterior rather than a posterior position. This factor must be of much greater importance than the position of the placenta. In discussing the third stage we notice that the author attributes to Williams (presumably

Whitridge Williams) the observation that the level of the fundus uteri rises for about two inches after *separation* of the placenta. This point has been recognized and taught in Europe for many years, and was fully discussed by Schroeder in 1886,[1] and Varnier in 1887.[2] We feel sure that Dr. Whitridge Williams would not himself claim priority for his observation.

The important section dealing with the Pathology of Labour has been written by Dr. John F. Moran. In discussing the management of labour in cases of pelvic contraction the author follows lines generally accepted at the present time. When the conjugate is between 7 and 9 cm. ($2^4/_5$ to $3^3/_5$ ins.) he truly remarks that many cases will end favourably in spontaneous delivery. This result cannot, however, be awaited with any confidence, and he accordingly recommends Cæsarean section in these cases, provided there is no reasonable fear of the existence of uterine infection. In the latter event, he does not advise symphysiotomy, but rather skilled and careful attempts at delivery with forceps followed by craniotomy upon the death of the child. In this respect he is in strong antagonism to the views of our *confrères* across the Channel. It is curious that the author barely mentions the induction of premature labour in connection with contracted pelvis; is it possible that this procedure has been abandoned in the United States? Considerations of space prevent anything like a full reference to the various important subjects discussed by Dr. Moran. Speaking generally, we may say that matters of the first importance, such as ante-partum hæmorrhage and uterine rupture, are clearly and adequately presented, although sometimes the reader receives an impression that the author has been obliged unduly to condense his matter, so that it becomes almost scrappy. Thus the entire subject of post partum hæmorrhage is dismissed in three pages of text. But the practical standpoint from which the book has been written is never lost sight of.

The Pathology of the Puerperium by Dr. Foster Lewis is one of the best sections in the book, and will fully repay perusal. Obstetric Operations are described by Dr. Montgomery G. Crockett, and the subject of the New-born Child receives full treatment from Dr. Foster Lewis.

The illustrations, so generously distributed, have been beautifully executed, and form a striking feature of the book; they will no doubt make it a popular one, for we know how much the present-day reader has come to rely upon the pictorial method in teaching. Previous American text-books, some of which have secured a long start, will no doubt be stimulated to renewed efforts by the exceedingly "likely" character of their latest rival, to whom, in conclusion, we heartily wish a long and honourable career.

[1] "Der schwangere und kreissende Uterus."

[2] *Annales de Gynécologie.*

Ueber Wundinfektion. Festrede gehalten am Stiftungstage der Kaiser Wilhelms-Akademie für das Militärärztliche Bildungswesen, 2 Dezember, 1906. Von Prof. Dr. E. Bumm, Geheimer Medizinalrat. Pp. 40. A. Hirschwald, Berlin, 1906. Price 1 mark.

Though there are several points in this pamphlet on which, as it seems to us, its author, Prof. Bumm, has hardly done justice to his English colleagues, still we laid it down with a feeling of unmixed admiration at the amount of information concerning the origin, course, and treatment of wound infection that he had managed to concentrate within the narrow limits of its forty pages.

The points at issue we will postpone till after we have endeavoured to give a general idea of the scope of the work, and of the skilful manner in which the author has collected the many scattered facts known on the subject, and blended them into one harmonious whole, which, while within the grasp of the youngest student, is nevertheless worthy of the attention of every practitioner of medicine.

Our author first notices briefly the old explanation of why wounds did not always heal "by first intention," but sometimes became inflamed and gave rise to more or less serious general symptoms. For centuries this had been ascribed to some infection or poison floating in the air as a miasm, or to foulness of the air itself. It was a great advance when Semmelweis, in the middle of the last century, twenty years before Lister, discovered that this was due to a fixed material poison that was capable of being carried by the fingers and instruments.

From 1860 onwards, microbes were found by many observers in the tissues and discharges in cases of puerperal fever and other diseases. Hueter was the first surgeon to point out, in 1872, the important part that microbes took in the production of wound infection. However, Billroth's teaching, in his monograph on the Coccobacteria Septica, published in 1874, that inflammation and suppuration are due to separate zymoids and not to the bacteria, shows how unsettled the opinions on the subject still were in the middle of the seventies. On this confusion light was shed by Pasteur and Koch. In 1879 Pasteur was able to isolate the "microbe en chapelets," now known as the streptococcus, from puerperal fever, and reproduce the symptoms in animals by inoculation. In 1878 Koch published his work on the "Etiology of Wound-infection," in which he laid down the principles and technique necessary for this investigation. This soon led to the discovery of a number of microbes that were capable of infecting and invading the body—some of them producing specific diseases, others being the cause of ordinary wound-infection. It is to the latter sort, to streptomycosis and staphylomycosis, that Bumm wishes to draw attention.

At first each clinical manifestation was supposed to be due to a different microbe, but at present we are compelled to consider all streptococci as identical, no constant difference having been found between them in form, growth, or biological characteristics.

The question at once arises, How then can they give rise to such different manifestations? This is due mainly to the great variation in the virulence of the streptococcus, owing to its power of adapting itself to

very various surroundings. With increase in virulence comes the power of invading the tissues and also of producing poisons, known as streptotoxines. The staphylococcus shows a greater tendency to localization than the streptococcus, but may at times become violently invasive. The clinical symptoms depend chiefly on the virulence of the coccus, and in a much less degree on the susceptibility of the patient and the nature and position of the wound. Bumm does not think that non-virulent cocci can suddenly become virulent. Non-virulent cocci produce violent reaction at the point of infection, followed by hyperæmia and the formation of a wall of leucocytes, which prevent invasion of the tissues either by secretion of a protective body or by phagocytosis. If the cocci are very virulent no reaction takes place, and they at once enter the lymphatics and blood-vessels, and soon spread over large portions of the body. If death takes place microscopic coccic emboli are found in various organs, but not a drop of pus. Cocci of medium virulence, though perhaps breaking through the first protecting wall of leucocytes, are stopped at the second line of defence, or at least become localized.

Should the cocci follow the course of the lymphatics we get the symptoms of erysipelas, progressive phlegmon, suppuration of the glands, peritonitis, or pleuritis. If, on the other hand, they follow the veins, we get quite different symptoms according as the cocci possesses pyogenic properties or not. In the latter case the thrombus that is formed soon becomes organized, but if the cocci are pyogenic the clot suppurates and breaks down, ulcers form on the interior of the veins, and we have all the classical symptoms of pyæmia.

Lately, an effort has been made to follow the more minute changes that take place in such cases in the blood itself. Thus it has been shown by Arneth that while the total number of leucocytes in the blood may be only slightly diminished, the relative proportion of the young mononuclear leucocytes to the older polynuclear leucocytes is greatly increased, the latter being used up in the struggle to overcome the cocci and in the formation of pus. As soon, however, as the infection has become localized the total number of leucocytes increases, and more especially the number of the polynuclear leucocytes; whereas a progressive diminution in the total number of leucocytes and an increase in the proportion of young mononuclear leucocytes points to exhaustion of the system and a diminution in its power of resistance.

Our author next considers the relation that decomposition holds to wound infection. During the distintegration of organic nitrogenous bodies, which, as Pasteur showed, is due to the action of various aërobic and anaërobic bacteria, the oxygen is taken up by the former, leaving the latter, which are the real cause of putrefaction, to develop freely. By them the albumen is broken up into various bodies, some of which are still unknown, and some of which are highly poisonous. These have been studied by Panum, while Bergmann and Schmiedeberg have isolated a substance they called "sepsin," and Brieger has obtained a number of nitrogenous bases, so-called ptomaines, some of which are most poisonous.

We must always remember that saprophytes have no power of invading the tissues, and can only subsist on dead matter. In all forms of progressive infection accompanied by decomposition, the invasive cocci go in front and cause necrosis, and the saprophytes follow and cause decomposition. In such cases we get the symptoms both of wound infection and of

wound decomposition. The latter may, however, occur alone if the wound secretion accumulates, a blood-clot forms, or any necrotic tissue is present, and the reaction depends on the quality and quantity of the poison. The amount of poison absorbed depends on the nature of the wound and the amount of pressure, while if there is free drainage all absorption ceases. It is a striking fact that decomposition poison has not nearly so bad an effect on the heart as the strepto- and staphylo-toxines.

Another function of the saprophytes is said to be to prepare the tissues for the entry of more dangerous microbes. In man this is true of the obligat anaërobic tetanus bacillus, but the same does not hold good for the streptococcus, except in animals. In midwifery, though decomposition poisoning is very frequent, it seldom leads to streptococcic infection, though some streptococci are often present. As a rule, the French saying, "Ce que pue, ne tue pas" (whatever stinks, doesn't kill), is undoubtedly true.

The simplest problem in treatment is presented by cases of wound decomposition. Here the indication is to remove all dead matter, after which all symptoms cease even though saprophytes still are present. In cases of wound infection, on the other hand, the microbes soon invade the tissues and are then removed from all external influences, and we have to confess that the treatment of infected wounds with the antiseptics at present at our disposal is of little or no avail.

The period of time that elapses between the moment of infection and the invasion of the tissues, varies with the nature of the wound and the virulence of the bacteria. In man we may hope, in the case of the streptococcus, for an interval of some hours during which the microbes may be washed away or destroyed by antiseptics. When once symptoms of general infection are present, however, all efforts at disinfection are useless and only tend to make fresh wounds and to interfere with the healthy reaction of the tissues. The efforts that have been made in such cases to act on the bacteria by injecting antiseptics, such as sublimate or collargol, into the veins have unfortunately also been unsuccessful.

The surgical treatment of septic wounds is equally disappointing. No spreading infection can be checked by the knife, for every fresh incision becomes itself infected. Also in pyæmia the ligature and removal of a portion of a vein is useless, unless the disease has become completely localized in this portion.

General treatment by forced feeding and alcohol is also powerless to arrest serious strepto- or staphylomycosis.

More hopeful is the treatment by the injection of immune sera, which has proved successful in animals against the streptococcus, and though no equivalent serum has yet been found for man, we must not therefore deny that the method is of any use. Bumm has seen the injection of immune serum followed by a sudden and energetic phagocytosis. This corresponds very closely with the results obtained by Bordet in his experiments on immunized and non-immunized guinea-pigs. He found that in the latter the streptococci were quite uninfluenced and soon made their way into the blood, whereas in the former a "crise phagocytaire" soon rendered them harmless. When once the tissues at a distance from the original point of entry have become disorganized they are quite uninfluenced by the injection of any of the sera yet known.

The latest method of treating wound infection is that by artificial hyperæmia, introduced by Bier, but it remains to be seen whether it can be applied successfully to cases of progressive wound infection.

Bumm concluded his lecture with a confident hope that the rate of progress that has marked the last thirty years will still continue, and that some of his hearers may live to see the day when wound infection will not only be preventable, but will also be arrested and cured. Those will indeed be golden days for all those whose occupation renders them liable at any moment to be called on to undertake the responsible duty of treating serious wound infection.

The first point in Prof. Bumm's lecture that we would venture to criticize is his statement that Semmelweis "was the first who laid it down that surgeons and obstetricians should abstain from touching and handling septic matter." Now in reading the lately re-published works of Semmelweis nothing struck us more than the absence of any demand that we should abstain from contact with septic matter. That he did not look on this as an essential is seen at p. 149 of this work, where, when speaking of the St. Rochus Hospital, at Pest, of which he was Director, he says:—"We did not as a rule practise the washing of the hands with chlorine, because we had not to cleanse them from decomposing organic matter. We only made use of the chloride of lime after making post mortems, which came but seldom." This does not seem to us to be a very unequivocal statement of the necessity of abstaining from coming in contact with septic matter, yet this was a common practice in England long before Semmelweis.

The second claim that is put forward in favour of Semmelweis is that he was the first to introduce the prophylactic washing of the hands with chlorine. Here again if we consult the "Collected Works" we shall find that the evidence totally negatives this view; for on p. 85 is given an account of a so-called epidemic of puerperal fever which occurred in the practice of Dr. Hardey, to which he says he put an end by "frequent washings with chlorine, and putting on a new suit of clothes." These cases occurred before 1845, so there can be no dispute about priority.

A still more unaccountable oversight is, that Prof. Bumm states that Hueter, writing in 1872, was the first surgeon who pointed out the rôle that Monads filled in the production of sepsis; for, as early as the year 1867 Lister published in the *Lancet* a paper "On the Antiseptic Principle in the Practice of Surgery," in the course of which he says:—"In conducting the treatment the first object must be the destruction of any septic germs which may have been introduced into the wounds."

These facts show how easily, even by an expert, the credit of priority may be quite unintentionally taken from those to whom it by right belongs.

ARTHUR V. MACAN.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS. Vol. xviii. For the year 1905. New York: The Greenwich Printing Co., 1906.

The American Association of Obstetricians and Gynecologists issues its Annual Transactions in a well-printed and neatly-bound volume. The eighteenth volume—that for the year 1905—lies before us. From the

contents of this volume it appears that our American confrères take a more extended view of their subject than is customary in this country. Thus the address of the President (Dr. H. W. Longyear) bears the title of "A Study of the Etiology of Floating Kidney, with Suggestions Changing the Operative Technique of Nephropexy"; and other surgical contributions appear on "Liver Surgery," "Intestinal Obstruction," "Primary Bowel Resection," on "Artificial Anus in the Treatment of Strangulated Hernia," on "Mesenteric Cysts," and on "Papillary Cystadenoma of the Breast."

John B. Deaver writes on "Diagnosis," and bemoans "the tendency, which at present exists, of making our diagnoses (or of not making them) by means of a consultation of specialists—hæmatologists, bacteriologists, skiagraphers and microscopists—or relying more upon the findings of these specialists, instead of by a minute, painstaking and complete physical examination, together with a careful study of the clinical history of the case." W. B. Chase writes on "Some General Considerations on the After-management of Abdominal Sections," and J. F. W. Whitbeck on "Some General Principles in Conservative Pelvic Surgery." F. Reder contributes an interesting account of "Trivial Pathologic Conditions of the Uterus and Adnexa considered as Causes of Severe Gastric Disturbances."

Myomata are dealt with in three articles. In "Abdominal Hysterectomy for Multiple Fibroids Complicated by Pregnancy," J. H. Carstens reports a successful case, and considers that no definite rule can be laid down to govern all cases; yet in general (1) fibroids complicating pregnancy can be left alone if they are sub-peritoneal and located at the upper half of the uterus; (2) fibroids located in the lower half of the uterus or in the broad ligament should be operated upon; and (3) fibroids adherent or complicated with other pelvic diseases should be removed by enucleation, or in some cases abdominal hysterectomy should be performed. M. F. Porter relates his "Personal Observations in Myofibromata of the Uterus." His observations cover 125 cases; more than 100 were subjected to abdominal hysterectomy, whilst only two vaginal hysterectomies were performed. In "Myomectomy," W. P. Manton calls attention to an operation which he considers is too rarely undertaken, and submits that (1) the ruthless sacrifice of the uterus in many cases of single and multiple fibroids of that organ is greatly to be deprecated, and the influence of good surgery should be towards the discontinuance of such unnecessary measures; (2) myomectomy affords relief in a large percentage of these cases, and has the advantage over hysterectomy in conserving the uterus, putting its tissues in the way of renewed health, and restoring functional activity; (3) under modern methods, in skilful hands, the dangers from this operation—hæmorrhage and sepsis—have been practically removed, and in suitable cases almost any number of tumours, wherever situated, may be enucleated with satisfactory results; and (4) in determining on myomectomy as the operation of choice, the age and physical condition of the patient, the arrangement and distribution of the tumours, and the amount of uterine musculature present must be given chief consideration.

Extra-uterine gestation is dealt with by C. L. Reed in "Abdominal Pregnancy, Persisting Beyond the Normal Period of Gestation, with Report of Cases," and by J. Miller in "Ectopic Pregnancy." Cancer has only one paper devoted to it, viz., that by X. O. Werder, "The Byrne Operation and its application in the Radical Treatment of Cancer of the Uterus,"

in which the value of the cautery is emphasized. The importance of "Appendicitis as a Factor in the Diagnosis and Treatment of Abdominal and Pelvic Tumours, also complicating Pregnancy," is discussed by R. B. Hall, who insists on operation whenever this disease complicates pregnancy. The relations of general medicine to gynæcology are not overlooked, as indicated by F. Reder's contribution, already mentioned. S. W. Bandler relates an interesting case of "Anuria following Salpingo-Oöphorectomy," and H. E. Hayd discusses "The Treatment of Prolapsus Uteri."

Obstetrics is represented by papers on "Pregnancy Associated with Diabetes," by M. A. Tate; "Some Observations on the Treatment of Face Presentations," by H. P. Clarke; "Perineal Injuries and Methods of Repair," by J. Price, and "Cæsarean Section," by H. Schwartz.

Abstracts of several other papers will be found elsewhere in this JOURNAL.

A perusal of the contents of this volume of Transactions enables us once more to appreciate the high level which has been attained in obstetrics and gynæcology by our contemporaries in the United States.

F. E. T.

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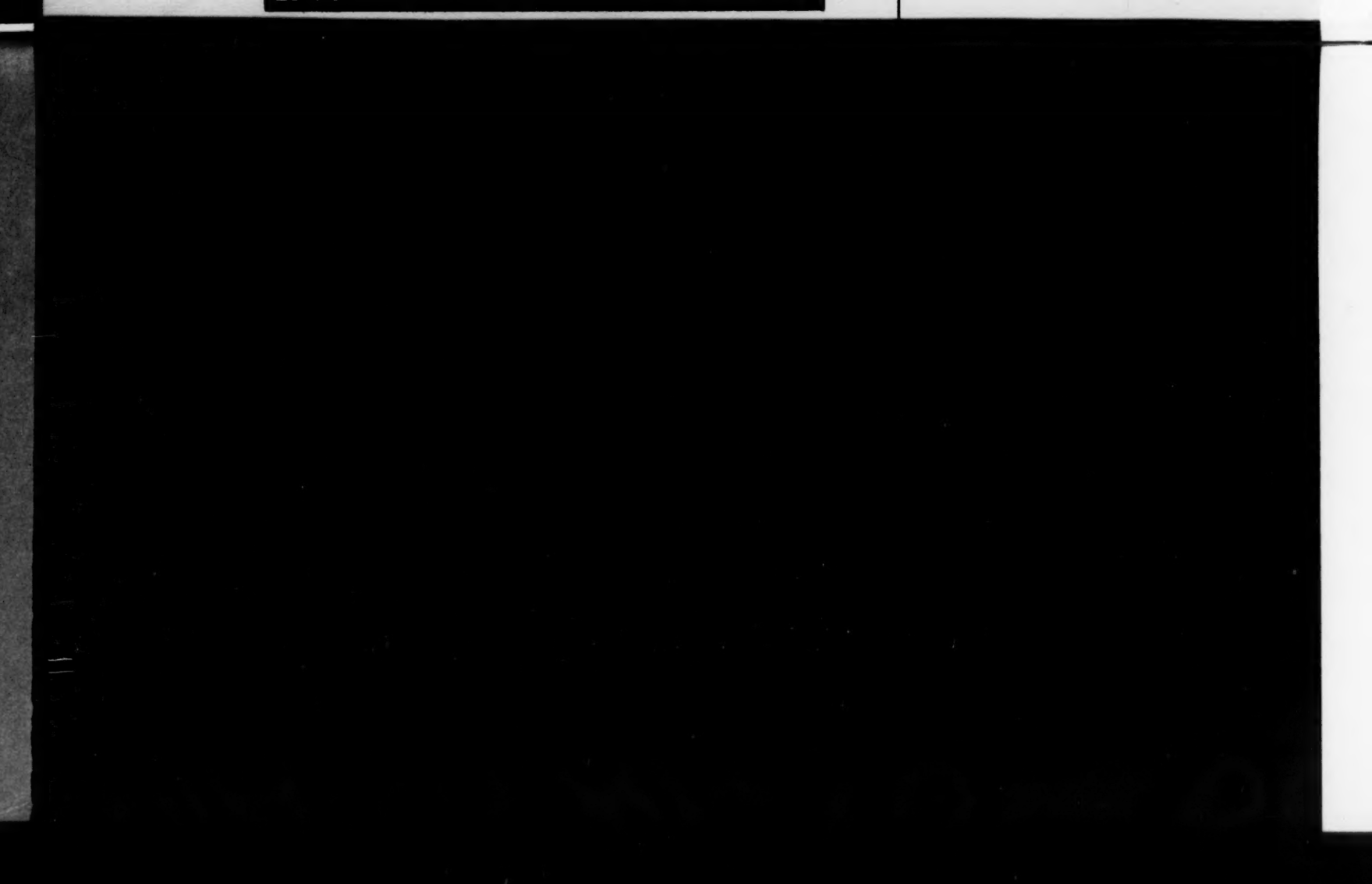

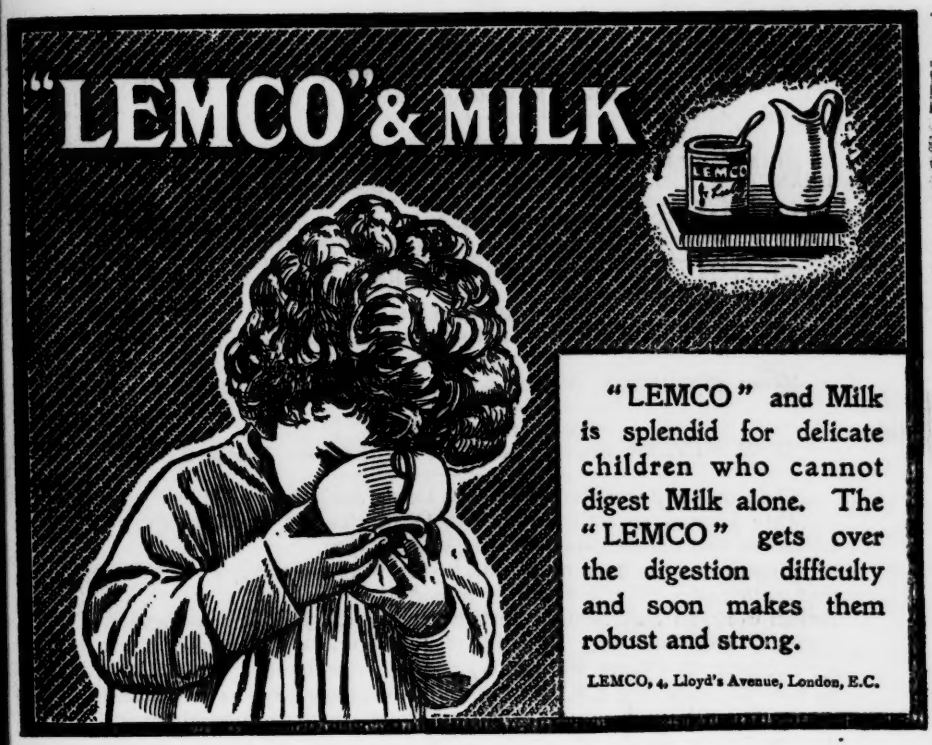
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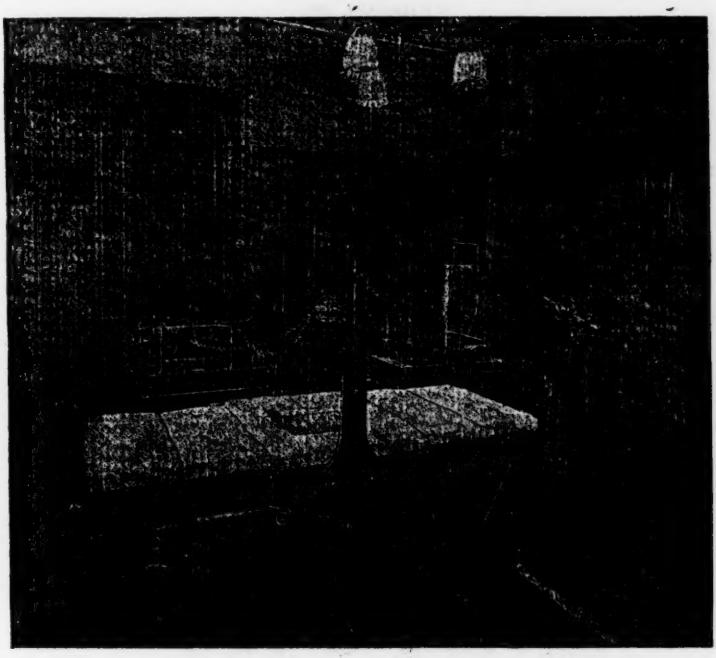

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